PB-227 835

REMOTE SENSING REPORT, SAN FRANCISCO BAY AREA, APRIL - JULY 1972. VOLUME 2

National Field Investigations Center - Denver
Denver, Colorado

April 1973

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PB 227 835

ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF ENFORCEMENT

REMOTE SENSING REPORT

SAN FRANCISCO BAY AREA

VOLUME 2

APRIL - JULY, 1972

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U S Department of Commerce
Springfield VA 22151

National Field Investigations Center - Denver

April 197~~2~~3

SAN FRANCISCO BAY AREA - SECTION C

Section C extends from a point approximately 0.8 kilometers (0.5 statute miles) south of the San Francisco - Oakland Bay Bridge to the San Mateo Bridge. This is shown in Figure 1 and 36.

Note: Indication numbers C-1 through C-12 appear on Figure 32, the Oakland West map.

C-1 July - A yellow-brown substance was leaching into the water from this dock area. There were three barges docked in this area.

C-2 July - An orange-brown substance was discharged at this point. No measureable plume was subsequently generated.

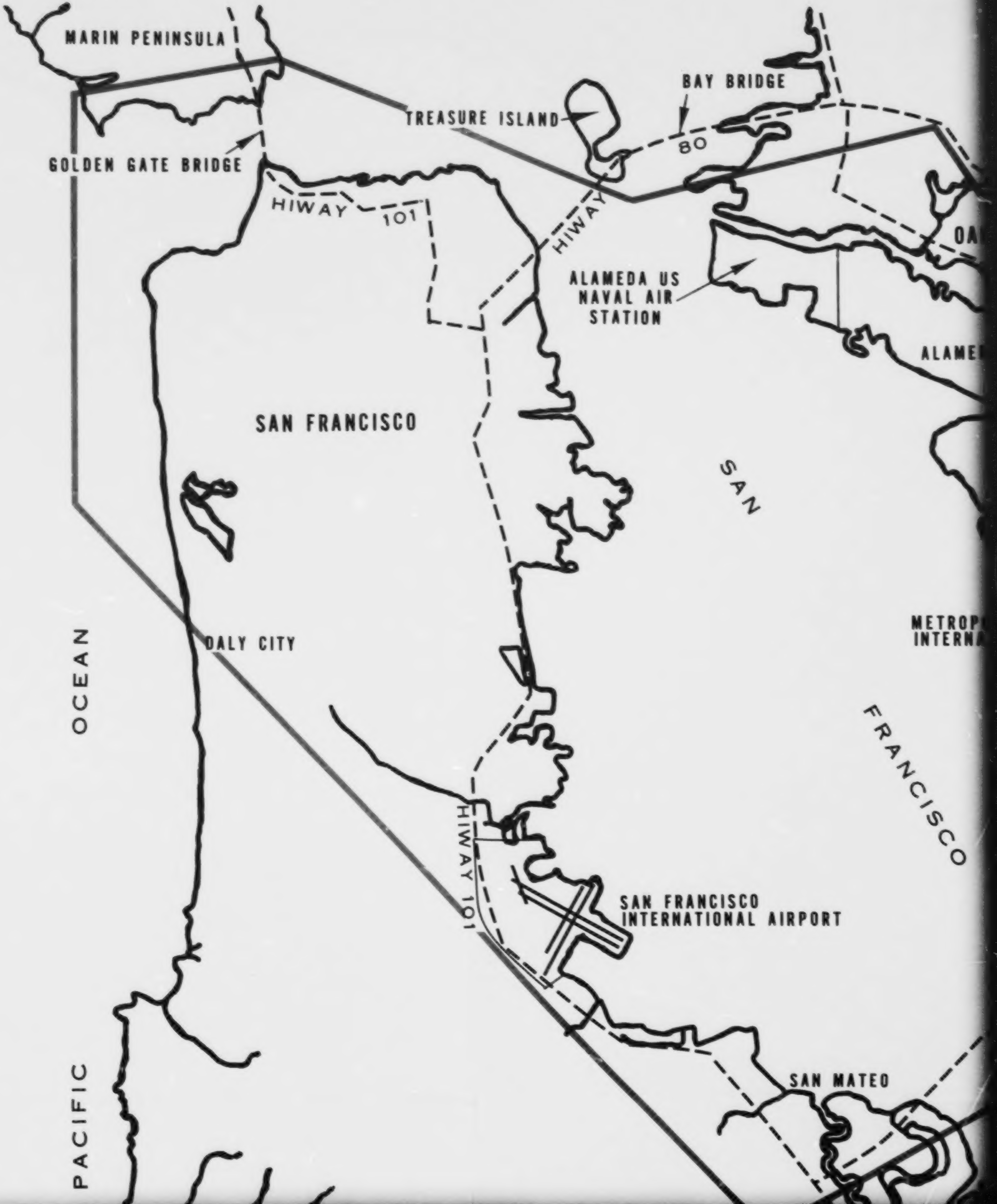
C-3 July - A large amount of floating solid waste was recorded in this area.

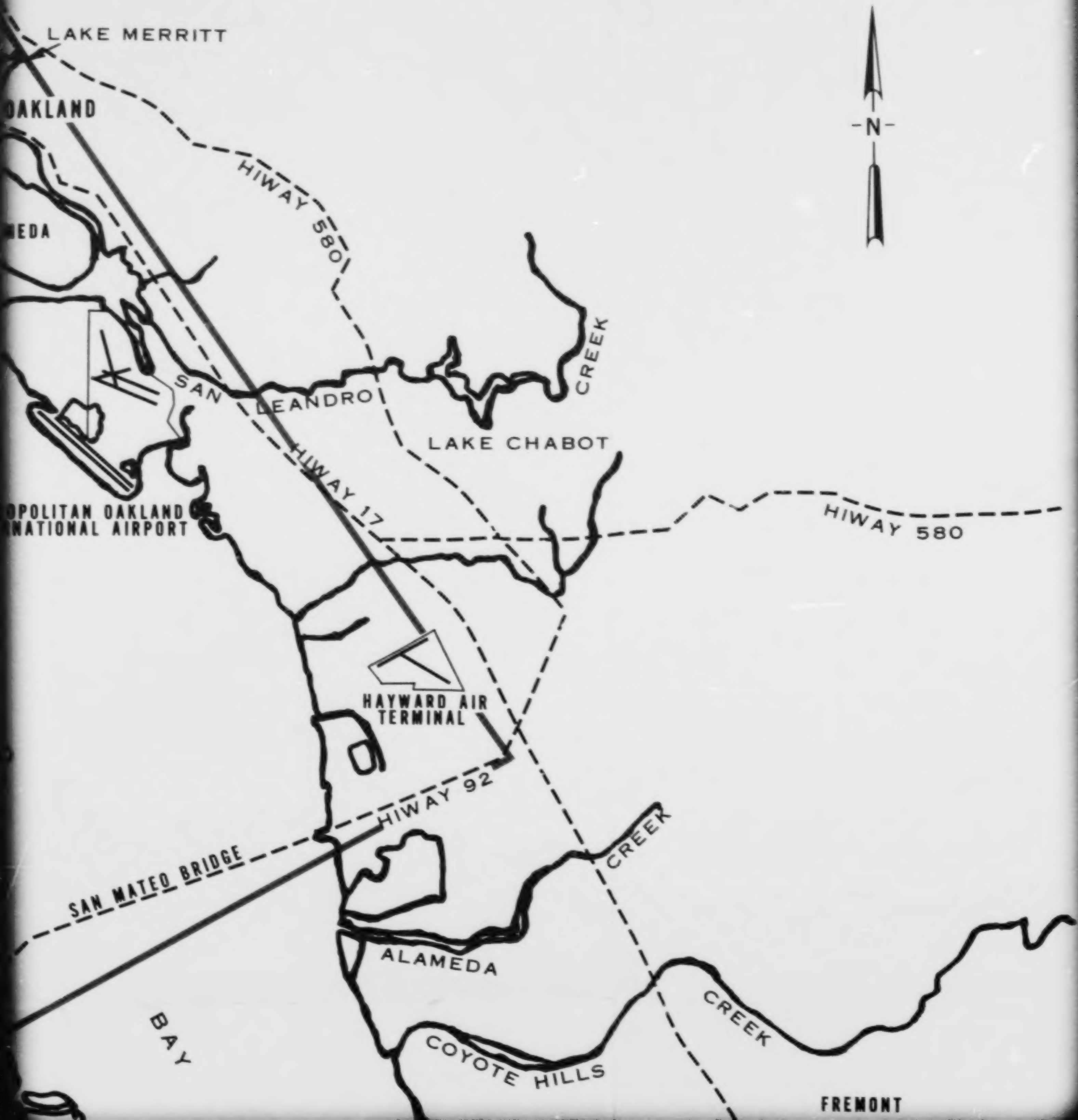
C-4 July - A reddish-brown substance was flowing into the Harbor waters at this point. The discharge was moving along the surface of the ground from the vicinity of a large building.

C-5 July - Two ships were washing out at the time of flight. There was oil on the water in this immediate area. The ship, corresponding to the left arrow, had a surface skimmer in place around its bow.

C-6 July - Crude oil was being spilled into the Harbor from this area of the Grove St. Pier facility. A barge was at the dock when this spill was recorded. The resultant oil slick was moving slowly in a westerly direction being dispersed by water traffic.

1<


MARIN PENINSULA
BAY BRIDGE
TREASURE ISLAND
80
GOLDEN GATE BRIDGE
HIWAY 101
HIWAY
OA
ALAMEDA US NAVAL AIR STATION
ALAME
SAN FRANCISCO
SAN
METROPO
INTERNA
OCEAN
DALY CITY
FRANCISCO
HIWAY 101
SAN FRANCISCO INTERNATIONAL AIRPORT
SAN MATEO
PACIFIC


LAKE MERRITT
OAKLAND
MEDA
HIWAY 580
N
CREEK
SAN LEANDRO
LAKE CHABOT
OPOLITAN OAKLAND
NATIONAL AIRPORT
HIWAY 17
HIWAY 580
HAYWARD AIR TERMINAL
HIWAY 92
CREEK
SAN MATEO BRIDGE
ALAMEDA
CREEK
BAY
COYOTE HILLS
FREMONT

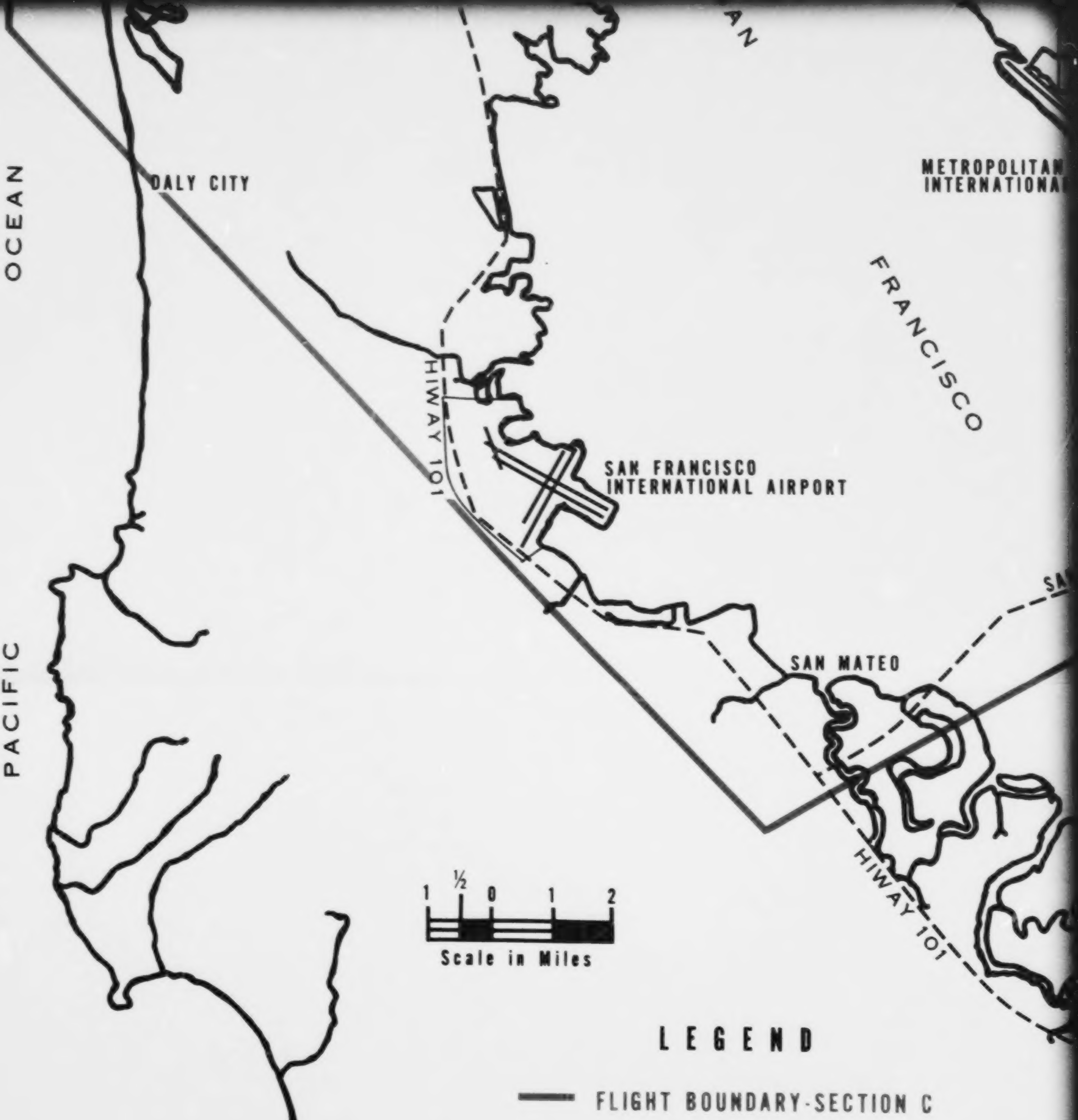
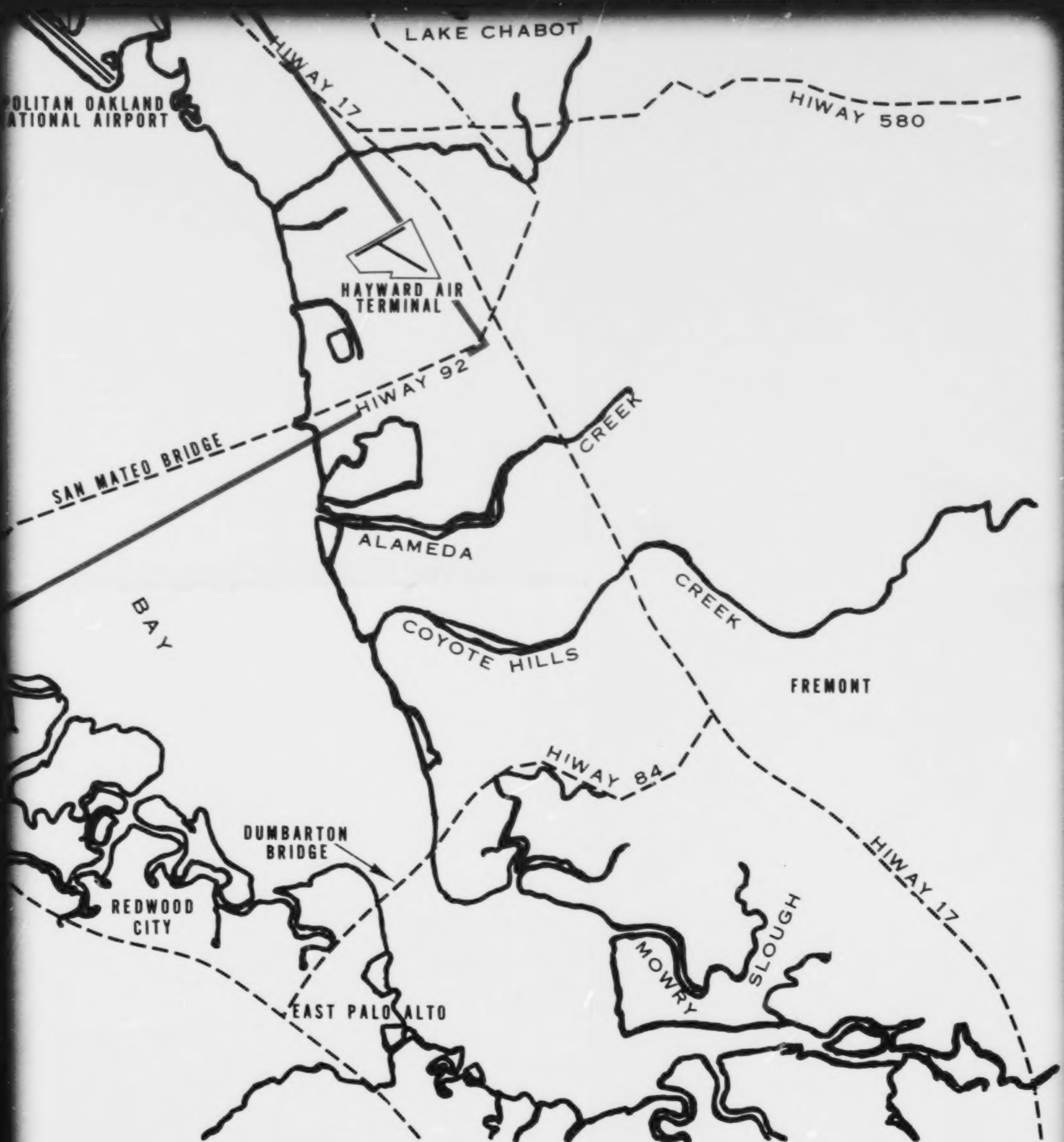

AN
METROPOLITAN
INTERNATIONA
DALY CITY
OCEAN
FRANCISCO
HIWAY 101
SAN FRANCISCO INTERNATIONAL AIRPORT
SA
SAN MATEO
PACIFIC
HIWAY 101
1 ½ 0 1 2
Scale in Miles
LEGEND
FLIGHT BOUNDARY-SECTION C

Figure 36. Section C


LAKE CHABOT
POLITAN OAKLAND
ATIONAL AIRPORT
HIWAY 17
HIWAY 580
HAYWARD AIR
TERMINAL
HIWAY 92
HIWAY 92
SAN MATEO BRIDGE
CREEK
ALAMEDA
BAY
COYOTE HILLS
CREEK
FREMONT
HIWAY 84
DUMBARTON
BRIDGE
REDWOOD
CITY
EAST PALO ALTO
MOWRY
SLOUGH
HIWAY 17

on C of the Bay Area

C-7 April - An outfall, located near the water's surface, was discharging a gray-brown substance resulting in a surface plume covering an area of 61 meters by 76 meters (200 feet by 250 feet).

C-8 April - A surface level outfall was discharging a dark-brown substance. No visible plume was present.

C-9 July - A yellow-brown substance was being discharged at this location.

C-10 April - There was a dark-brown outflow into Clinton Basin from a pond not shown on the map.

July - A gold colored substance was being discharged from the same pond.

C-11 April - There was a probable subsurface discharge located here. There was no discoloration in this area, but the surface water was disturbed in a manner characteristic to submerged outfalls.

C-12 July - Mats of chlorophyllic algae were detected in this immediate area.

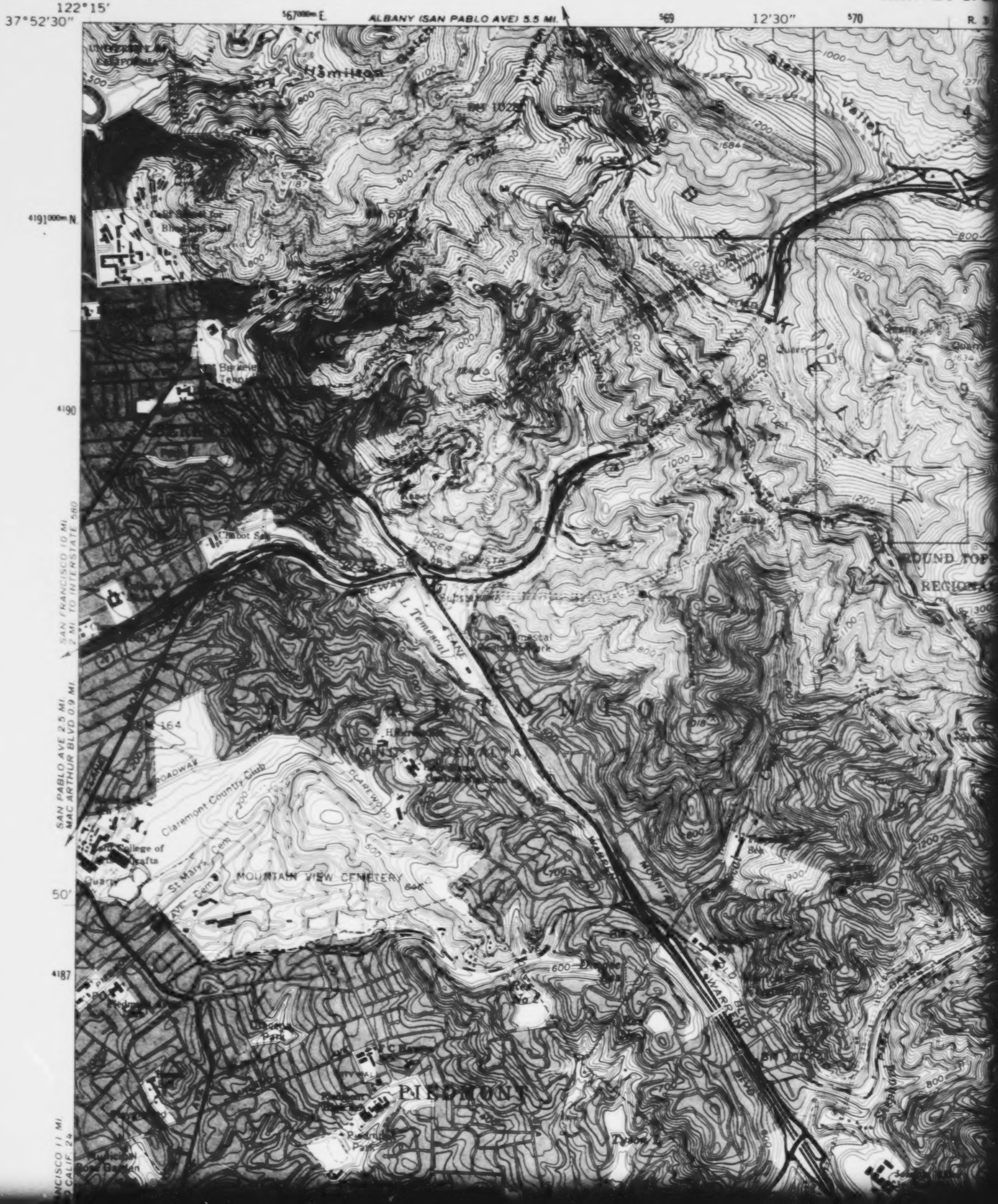
Note: Indication numbers C-13 through C-23 appear on Figure 37, the Oakland East map.

C-13 July - A red-brown substance appeared to be backing into the water at this point.

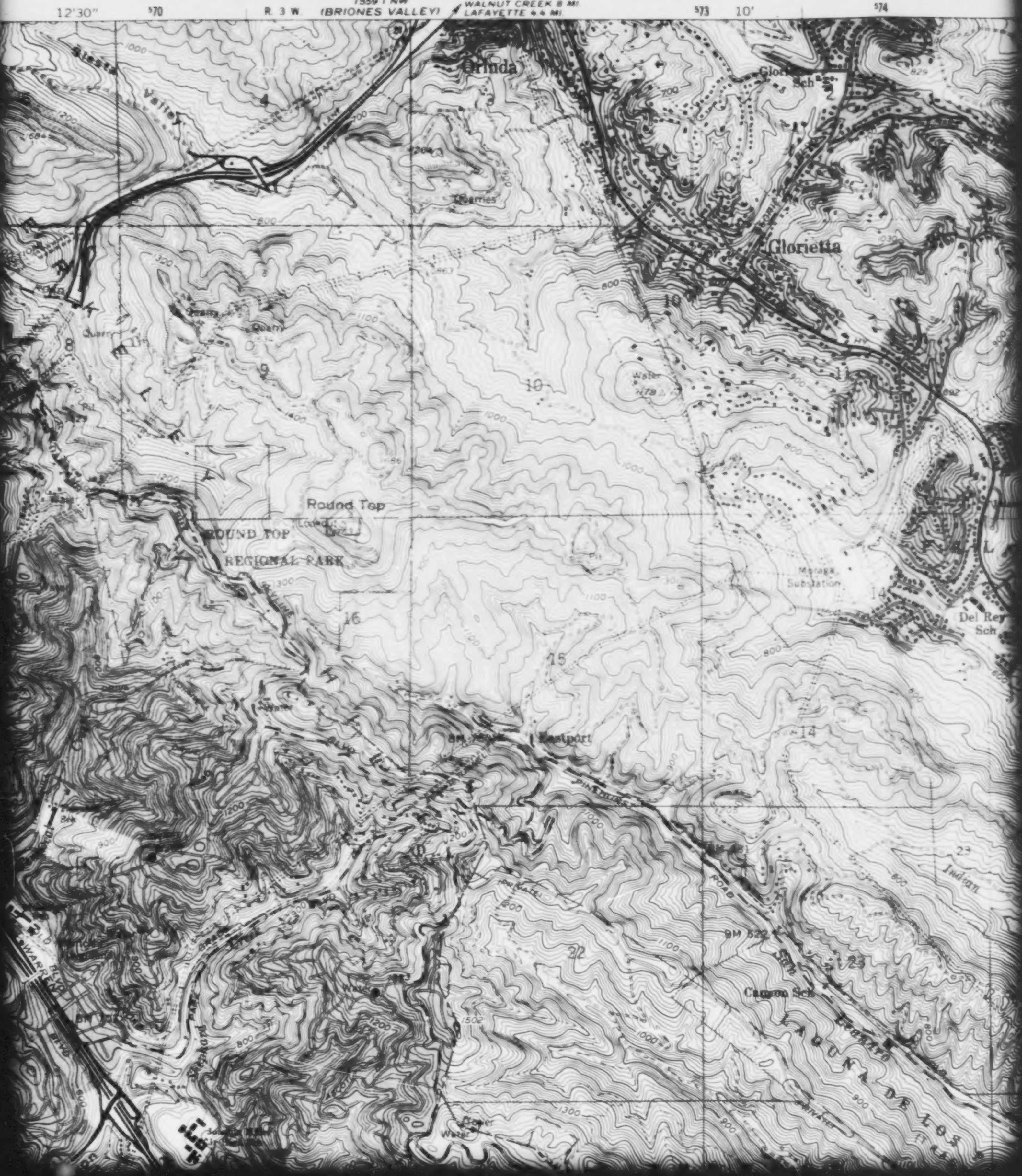
1559 IV NE
(RICHMOND)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

E
HARVEY O. B

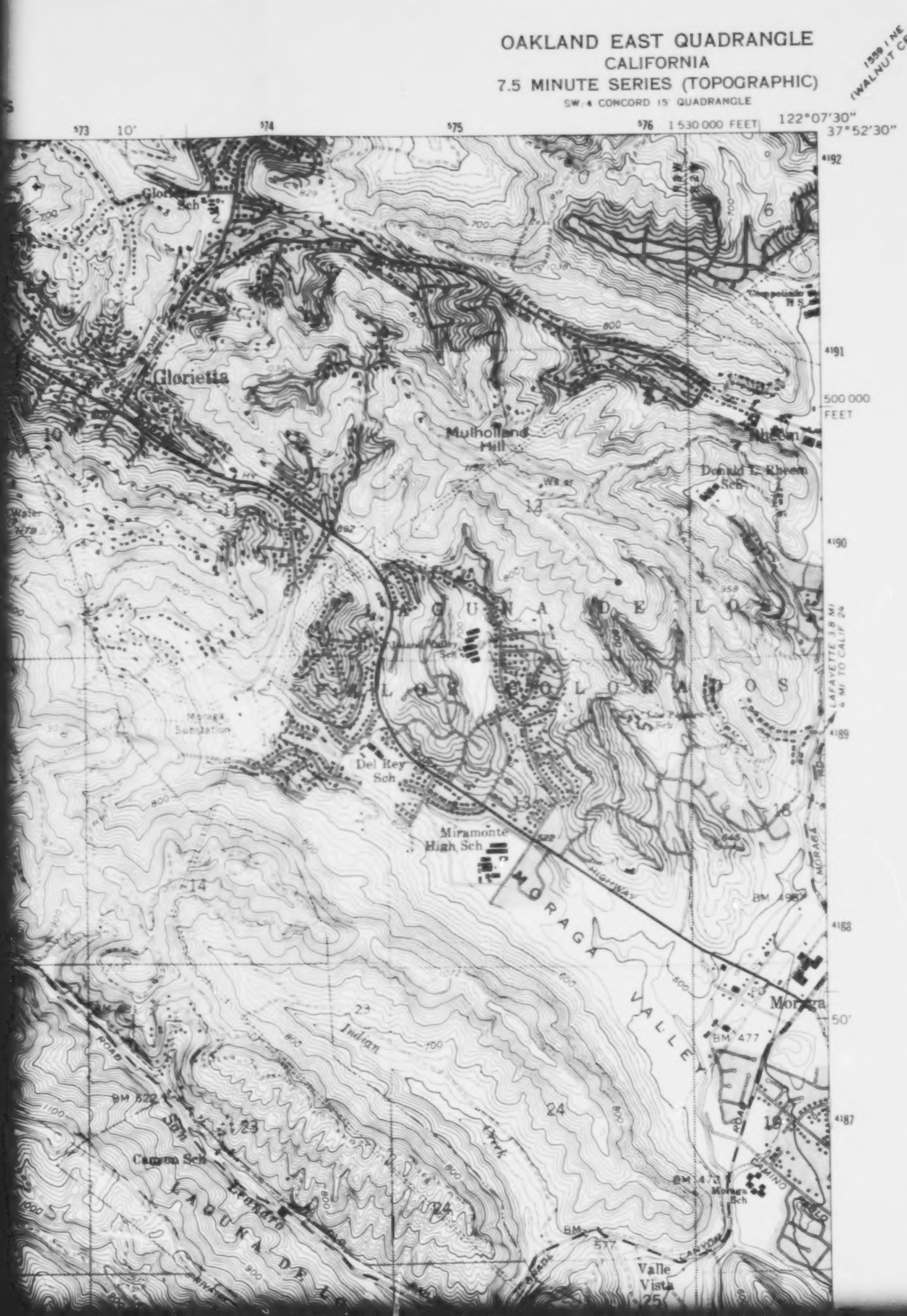

122°15′
37°52′30″
567000m E.
ALBANY (SAN PABLO AVE) 5.5 MI.
569
12′30″
570
4191000m N.
4190
4187
50′
SAN FRANCISCO 10 MI.
2 MI. TO INTERSTATE 580
SAN PABLO AVE 2.5 MI.
MAC ARTHUR BLVD 0.9 MI.
SAN FRANCISCO 11 MI.
CALIF. 24
Hamilton Gulch
Siesta Valley
Claremont Country Club
College of Arts and Crafts
St. Mary's Cem.
MOUNTAIN VIEW CEMETERY
L. Temescal
PIEDMONT
Tyson L.
ROUND TOP
REGIONAL
WARREN BLVD
BROADWAY
CLAREWOOD
BM 164
BM 1025
1684
1000
1100
1200
1300
800
900
600
700
500

STATE OF CALIFORNIA
EDMUND G. BROWN, GOVERNOR
HARVEY O. BANKS, DIRECTOR OF WATER RESOURCES

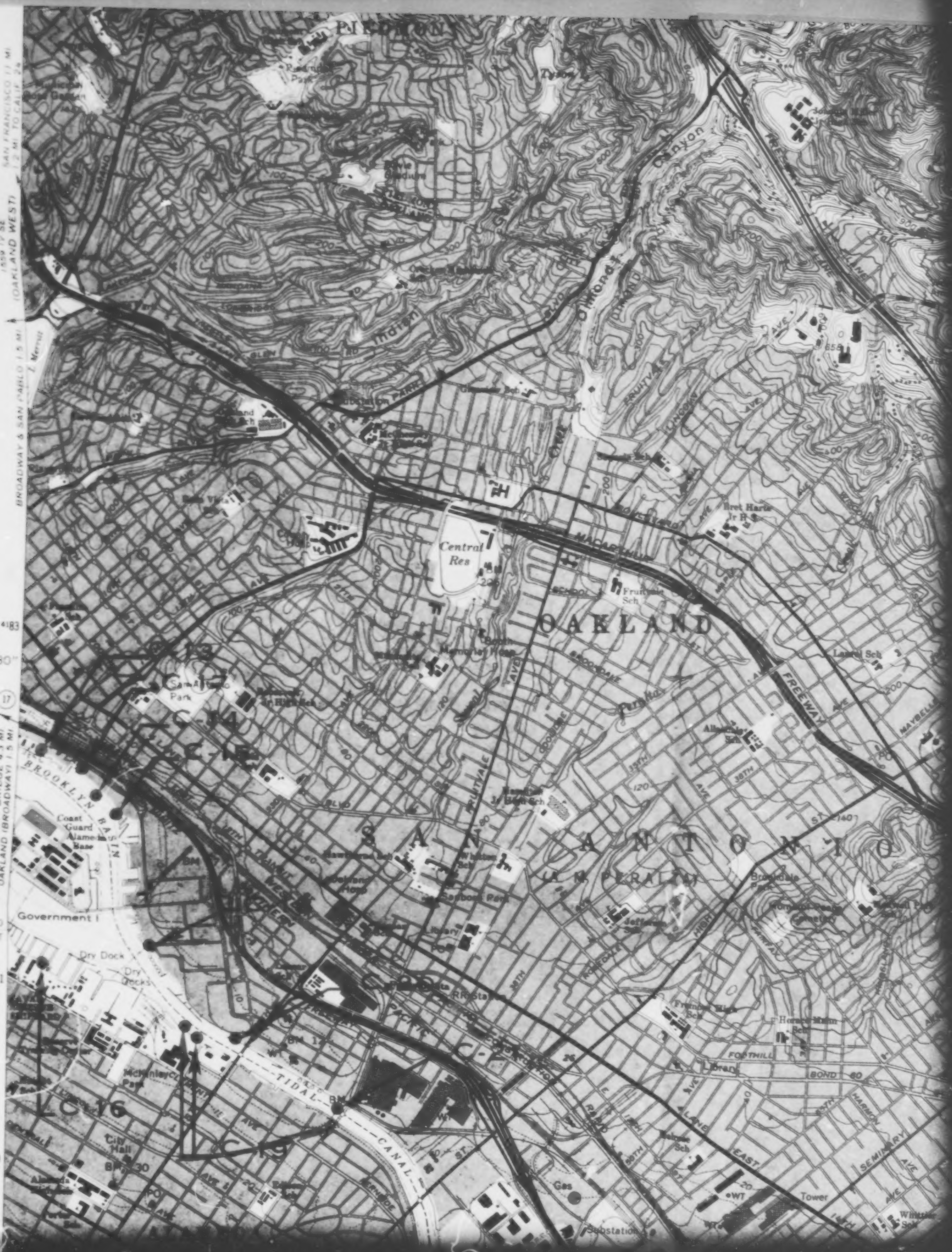


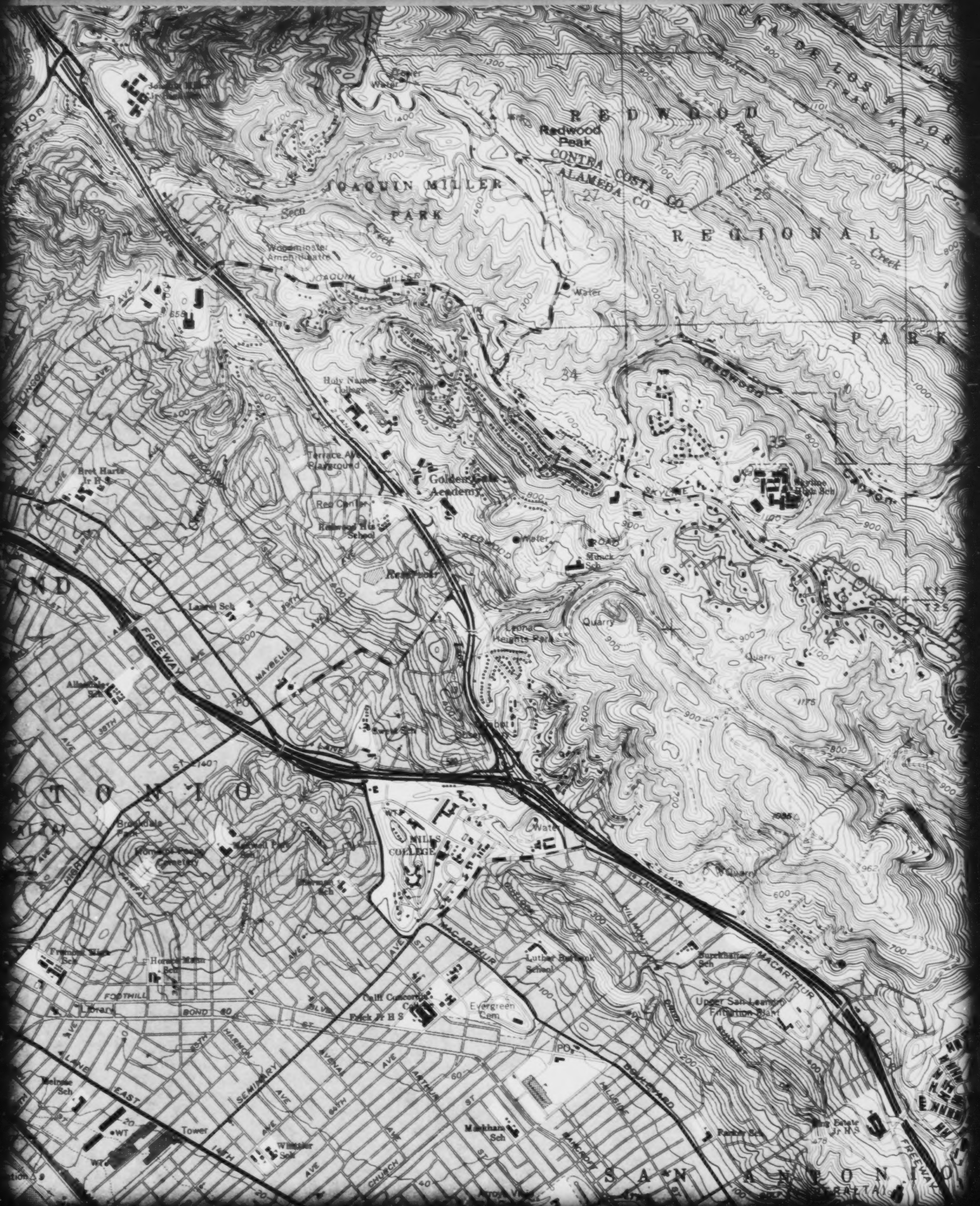
12'30"
570
R. 3 W.
1559 I NW
(BRIONES VALLEY)
WALNUT CREEK 8 MI.
LAFAYETTE 4.4 MI.
573
10'
574
Orinda
Quarries
Glorietta
Water
Quarry
Round Top
ROUND TOP
REGIONAL PARK
Moraga
Substation
Del Rey
Sch
Eastport
Canyon Sch
Indian
LAGUNA DE LOS
ROAD
10
16
15
14
22
23

OAKLAND EAST QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 CONCORD 15' QUADRANGLE

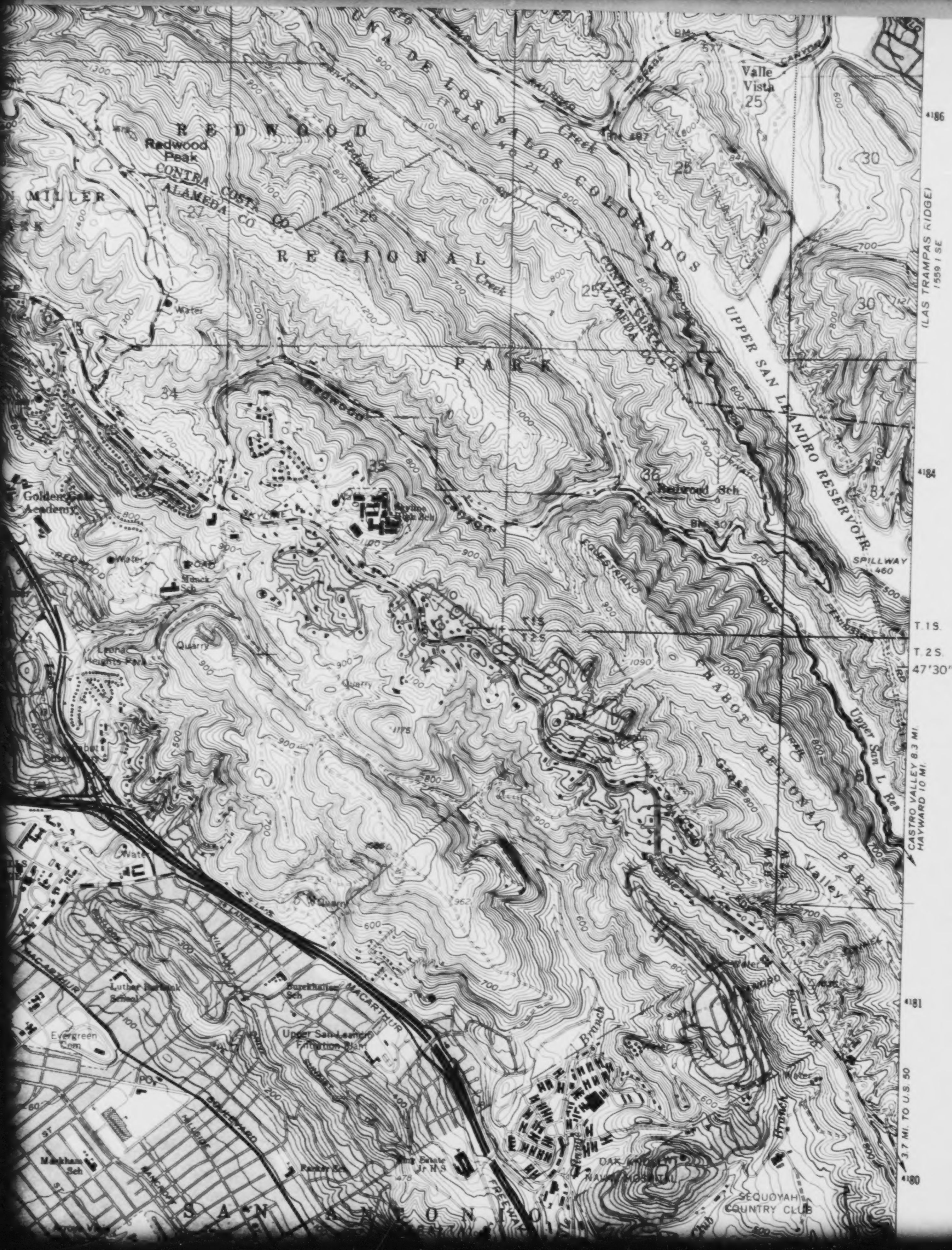


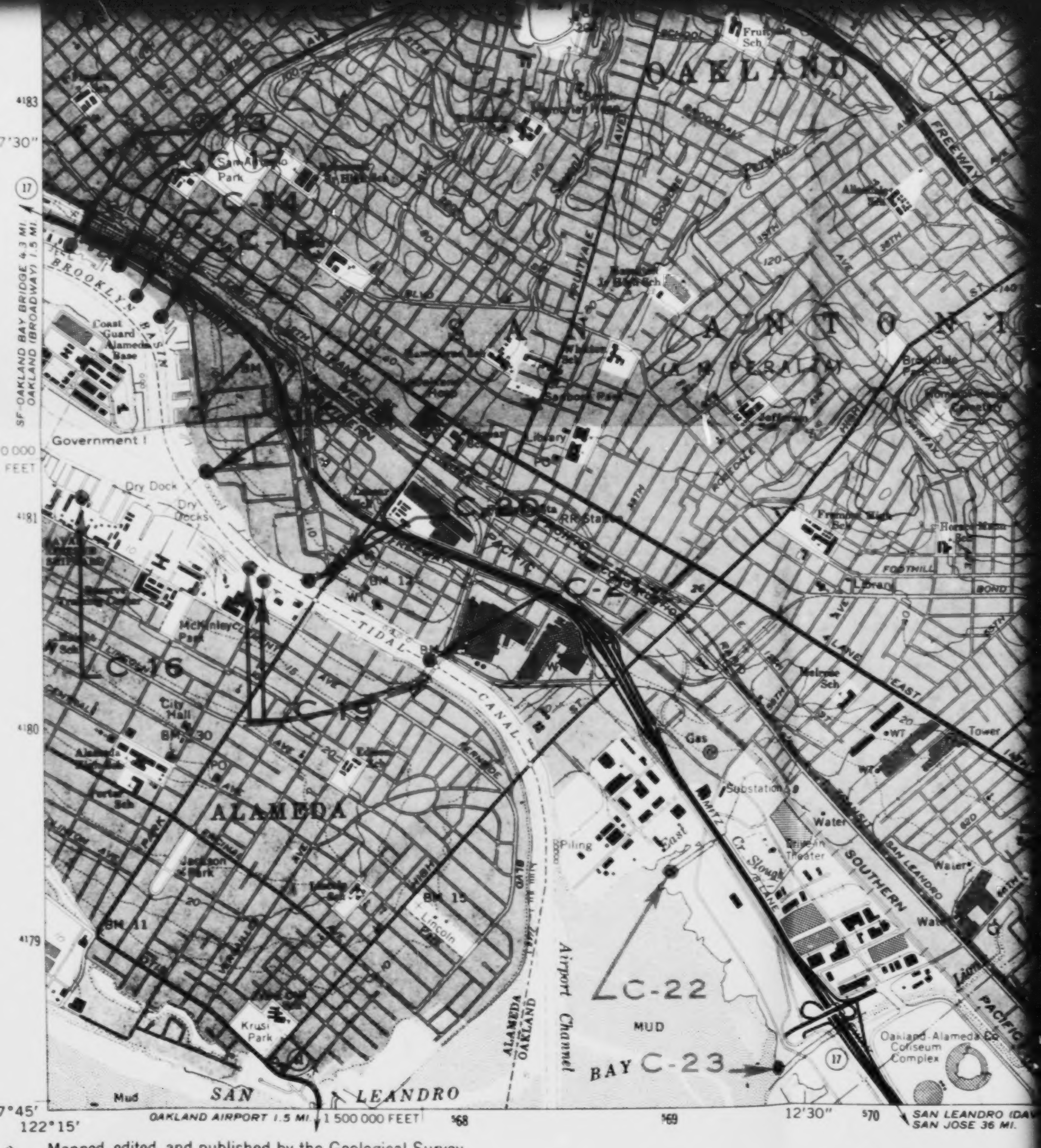
1559 I NE
(WALNUT CREEK)
573
10'
574
575
576
1 530 000 FEET
122°07'30"
37°52'30"
4192
4191
500 000
FEET
4190
4189
4188
50'
4187
Glorietta Sch
Glorietta
Mulholland Hill
Campolindo H S
Rheem
Donald L. Rheem Sch
LAGUNA DE LOS
PALOS COLORADOS
Moraga Sanitation
Del Rey Sch
Los Perales Sch
Miramonte High Sch
MORAGA
HIGHWAY
MORAGA VALLEY
Moraga
BM 477
BM 473
Moraga Sch
BM 577
Valle Vista
Indian Creek
San Leandro
Canyon Sch
LAGUNA DE LOS
BM 622
LAFAYETTE 3.8 MI
4 MI TO CALIF 24
CANYON
CAMINO
ROAD
BM 495
10
12
13
14
18
23
24
25
700
800
900
1000
1100


PIEDMONT
SAN FRANCISCO 11 MI
1.2 MI TO CALIF 24
1559 IV SE
(OAKLAND WEST)
BROADWAY & SAN PABLO 1.5 MI
Canyon
Dimond
Indian
Central Res
OAKLAND
MACARTHUR
FREEWAY
Fruitvale Sch
Bret Harte Jr H S
Laurel Sch
FRUITVALE AVE
4183
47'30"
17
C-13
C-14
SF-OAKLAND BAY BRIDGE 4.3 MI
OAKLAND (BROADWAY) 1.5 MI
BROOKLYN BASIN
Coast Guard Alameda Base
SAN ANTONIO
Government I
470 000 FEET
Dry Dock
Dry Docks
4181
RR Sta
C-20
C-21
TIDAL CANAL
McKinley Park
LC 16
C-15
City Hall
4180
CANAL
Library
FOOTHILL
BOND
SEMINARY AVE
Gas
Tower
Substation



REDWOOD
Redwood Peak
CONTRA COSTA CO
ALAMEDA CO
REGIONAL
PARK
JOAQUIN MILLER PARK
Seco Creek
Woodminster Amphitheatre
JOAQUIN MILLER
Holy Names College
Terrace Ave Playground
Golden Gate Academy
Rec Center
Redwood Hts School
Bret Harte Jr H S
REDWOOD
SKYLINE
Skyline High Sch
Monck Sch
Laurel Sch
MAYBELLE
FREEWAY
Leona Heights Park
Quarry
Quarry
Water
Water
Water
Water
TONIO
Brookdale Park
Evergreen Cem
MILLS COLLEGE
MACARTHUR
Luther Burbank School
Burckhalter Sch
Upper San Leandro Filtration Plant
Calif Concordia Coll
Frick Jr H S
FOOTHILL
BOND
Library
Fremont High Sch
Horace Mann Sch
Melrose Sch
Whittier Sch
Markham Sch
Parker Sch
King Estate Jr H S
SEMINARY
AVE
HARMON
BOULEVARD
EAST
Tower
WT
PO
SAN ANTONIO
FREEWAY
Canyon
CANYON
27
26
34
35
900
1100
1300
1175
962
700
800
600
500
400
300
200
100


REDWOOD
REGIONAL
PARK
Redwood Peak
CONTRA COSTA CO
ALAMEDA CO
MILLER
UNA DE LOS PALOS COLORADOS
Redwood Creek
Valle Vista
UPPER SAN LEANDRO RESERVOIR
SPILLWAY 460
Redwood Sch
Skyline High Sch
SKYLINE
REDWOOD ROAD
Golden Gate Academy
Water
Quarry
Laura Heights Park
CHABOT REGIONAL PARK
Grass Valley
Upper San L Res
T.1S.
T.2S.
47'30"
4186
4184
4181
4180
(LAS TRAMPAS RIDGE) 1559 I SE
CASTRO VALLEY 8.3 MI. HAYWARD 10 MI.
3.7 MI. TO U.S. 50
MACARTHUR
BOULEVARD
FREEWAY
Luther Burbank School
Burckhalter Sch
Upper San Leandro Filtration Plant
Evergreen Cem
Markham Sch
King Estate Jr H S
OAK KNOLL NAVAL HOSPITAL
SEQUOYAH COUNTRY CLUB
SAN ANTONIO
Arroyo Viejo
Branch
PO
Club


OAKLAND
SAN ANTONIO
(AMPERALTA)
ALAMEDA
C-13
C-14
C-12
C-20
C-2
C-16
C-19
C-22
C-23
BROOKLYN BASIN
Coast Guard Alameda Base
Government I
Dry Dock
Dry Docks
TIDAL CANAL
McKinley Park
City Hall
Jackson Park
Krusi Park
Lincoln Park
Airport Channel
ALAMEDA OAKLAND
MUD
BAY
SAN LEANDRO
Mud
Substation
Gas
Water
Drive-in Theater
SOUTHERN PACIFIC
Oakland-Alameda Co Coliseum Complex
FREEWAY
4183
47'30"
4181
470 000 FEET
4180
4179
37°45'
122°15'
OAKLAND AIRPORT 1.5 MI.
1 500 000 FEET
568
569
12'30"
570
SF-OAKLAND BAY BRIDGE 4.3 MI.
OAKLAND (BROADWAY) 1.5 MI.
SAN LEANDRO (DAV
SAN JOSE 36 MI.

(HUNTERS POINT)
1559 III NE

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and Alameda Co.

Topography from aerial photographs by photogrammetric methods and by planetable surveys 1947. Revised from aerial photographs taken 1958. Field check 1959

Hydrography compiled from USC&GS chart 5535 (1958)

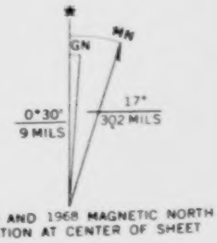
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

Dotted land lines were established by private survey

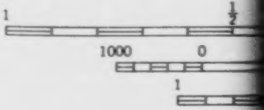
Red tint indicates areas in which only landmark buildings are shown

Data shown in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban area

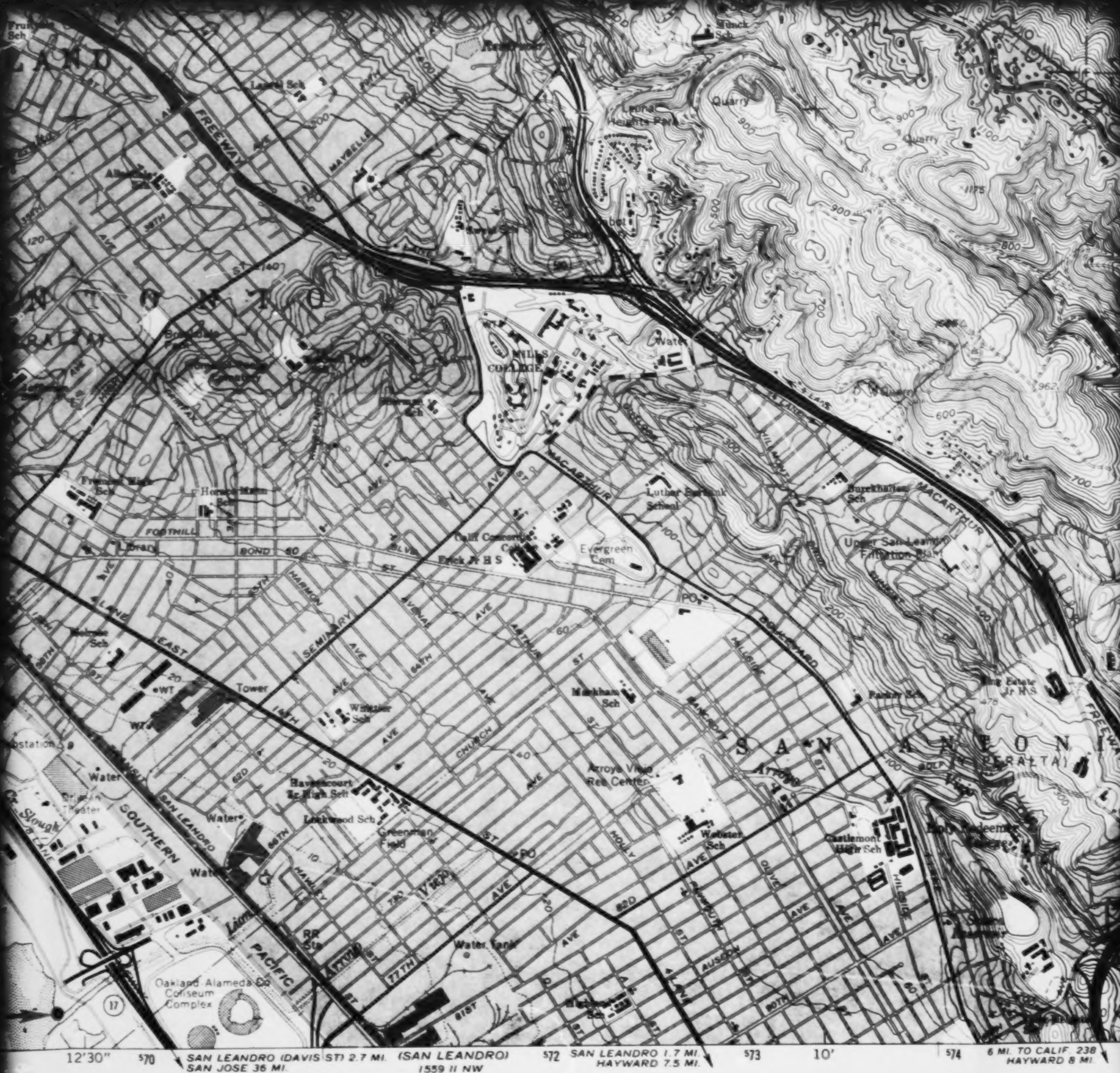

GN
MN
0°30'
9 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



DEPTH CU
SHORELINE

THIS MAP
FOR SALE BY U. S. GEOLOGIC
A FOLDER DESCRIBIN


FREEWAY
MACARTHUR
MILLS COLLEGE
Laurel Heights Park
Quarry
Luther Burbank School
Burckhalter Sch
Upper San Leandro Filtration Plant
Calif Concordia Coll
Frick Jr H S
Evergreen Cem
Fremont High Sch
Horace Mann Sch
FOOTHILL
BOND
SEMINARY
AVENAL
Markham Sch
Webster Sch
Parker Sch
King Estate Jr H S
SAN ANTONIO
PERALTA
Arroyo Viejo Rec Center
Havenscourt Jr High Sch
Lockwood Sch
Greenman Field
Castlemont High Sch
Holy Redeemer
Tower
Water
Substation
Brisbin Theater
SOUTHERN PACIFIC
SAN LEANDRO
Water Tank
Oakland Alameda Co Coliseum Complex
17
RR Sta
77TH
CHURCH
HOLLY
AUSEON
ARTHUR
BANCROFT
MACARTHUR
BOULEVARD
12'30"
570
SAN LEANDRO (DAVIS ST) 2.7 MI.
SAN JOSE 36 MI.
(SAN LEANDRO)
1559 II NW
572
SAN LEANDRO 1.7 MI.
HAYWARD 7.5 MI.
573
10'
574
6 MI. TO CALIF. 238
HAYWARD 8 MI.

SCALE 1:24000

1 ½ 0 1 MILE

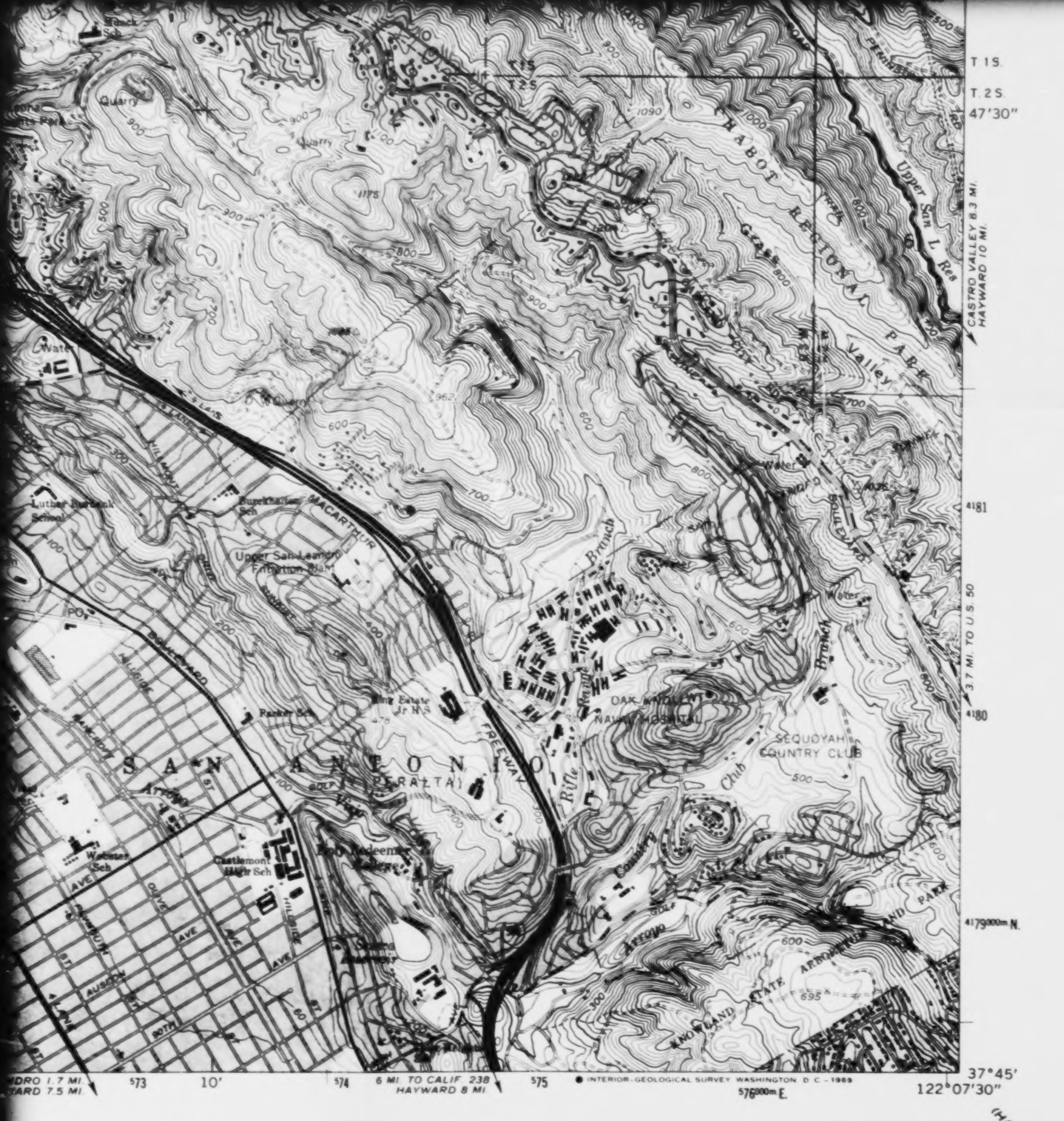
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 5 FEET

QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D.C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST


T 1S.
T. 2S.
47'30"
CHABOT REGIONAL PARK
Upper San L Res
CASTRO VALLEY 8.3 MI.
HAYWARD 10 MI.
Quarry
1175
1090
962
Grass Valley
Water
Luther Burbank School
Burckhalter Sch
MACARTHUR
Upper San Leandro Filtration Plant
4181
4180
4179000m N.
3.7 MI. TO U.S. 50
OAK KNOLL NAVAL HOSPITAL
SEQUOYAH COUNTRY CLUB
Rifle Range Branch
Arroyo
Club
FREEWAY
SAN ANTONIO
(PERALTA)
Parker Sch
Elmhurst Jr H S
Holy Redeemer College
Castlemont High Sch
Webster Sch
BOULEVARD
KNOWLAND STATE ARBORETUM AND PARK
695
DRO 1.7 MI.
ARD 7.5 MI.
573
10'
574
6 MI. TO CALIF. 238
HAYWARD 8 MI.
575
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1969
576000m E.
37°45'
122°07'30"
(HAYWARD)
1559 II NE

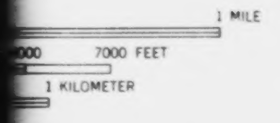
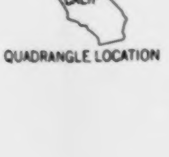

1 MILE
000
7000 FEET
1 KILOMETER

Figure 37.

ATER
WATER


CALIF
QUADRANGLE LOCATION

RDS
WASHINGTON, D. C. 20242
E ON REQUEST

OAKLAND EAST, CALIF.
SW/4 CONCORD 15' QUADRANGLE
N3745—W12207.5/7.5

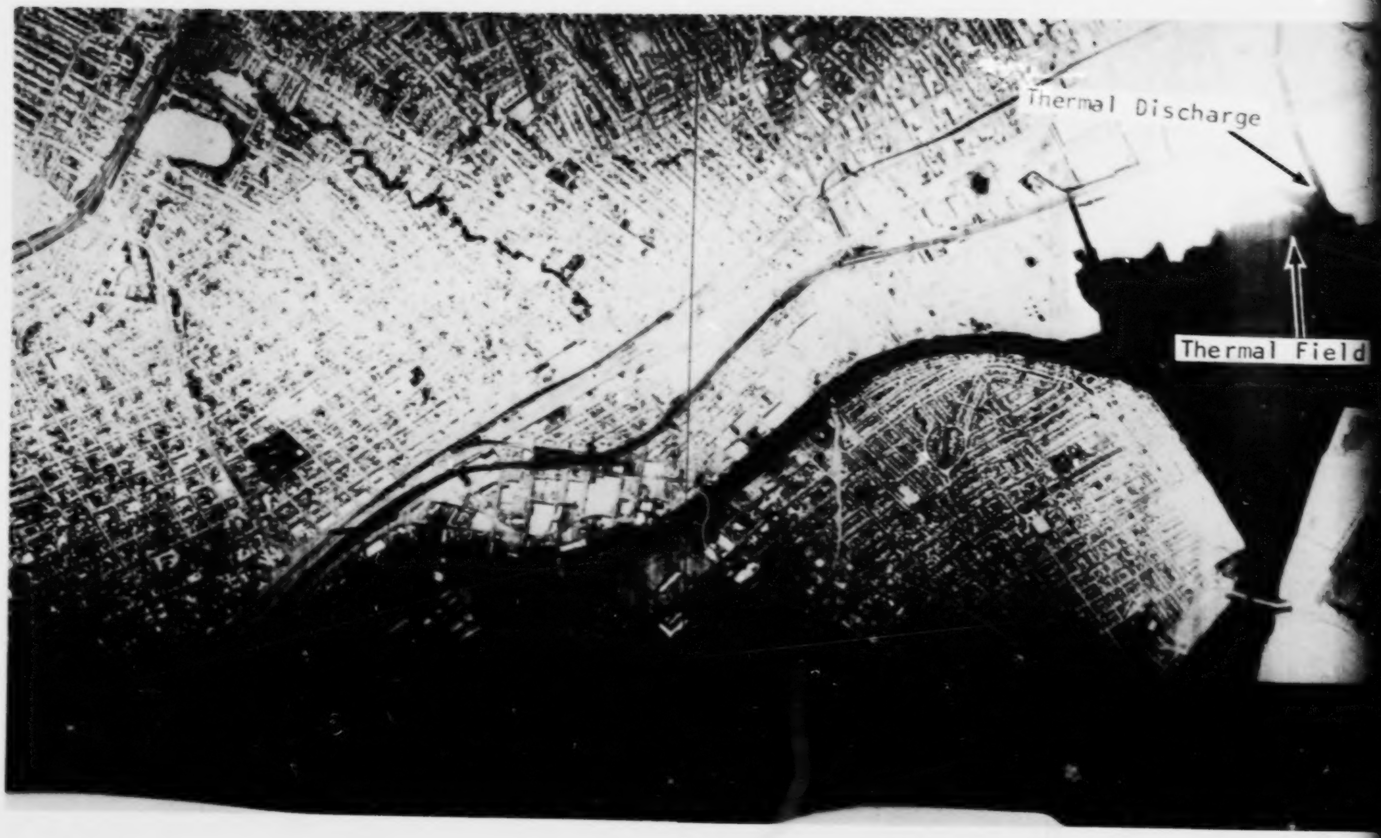
1959
PHOTOREVISED 1968
AMS 1559 I SW—SERIES V795

4<

C-14	July -	Water was being discharged from the dock at this location. There was no visible discoloration in the receiving water as a result of this discharge.
C-15	July -	This is another area in the Brooklyn Basin where mats of algae were detected.
C-16	July -	A surface level outfall was discharging a small volume of a red-brown substance at this location.
C-17	July -	A rust colored substance appeared to be leaching from the dry dock area.
C-18	July -	A pipe from an industrial facility was recorded at this location. It was inactive at the time of flight.
C-19	July -	An orange-brown substance was being discharged from the dock area in the barge/ship facility.
C-20	April -	An outfall at this location was discharging a yellow-brown substance into the tidal canal.
C-21	April -	A surface level outfall at this point had a gray-brown discharge.
C-22	April -	The effluent from this canal was dark brown in color.
	July -	The effluent was dark gray-green in color at the time of flight.
C-23	July -	There was no discoloration in this canal. The thermal map of this area indicated the presence of a thermal plume or field somewhat warmer than the ambient temperature of San Leandro Bay. This is shown in Figure 38.

Note: Indication numbers C-24 through C-38 appear in Figure 39, the San Leandro map.

5<


Thermal Discharge
Thermal Field

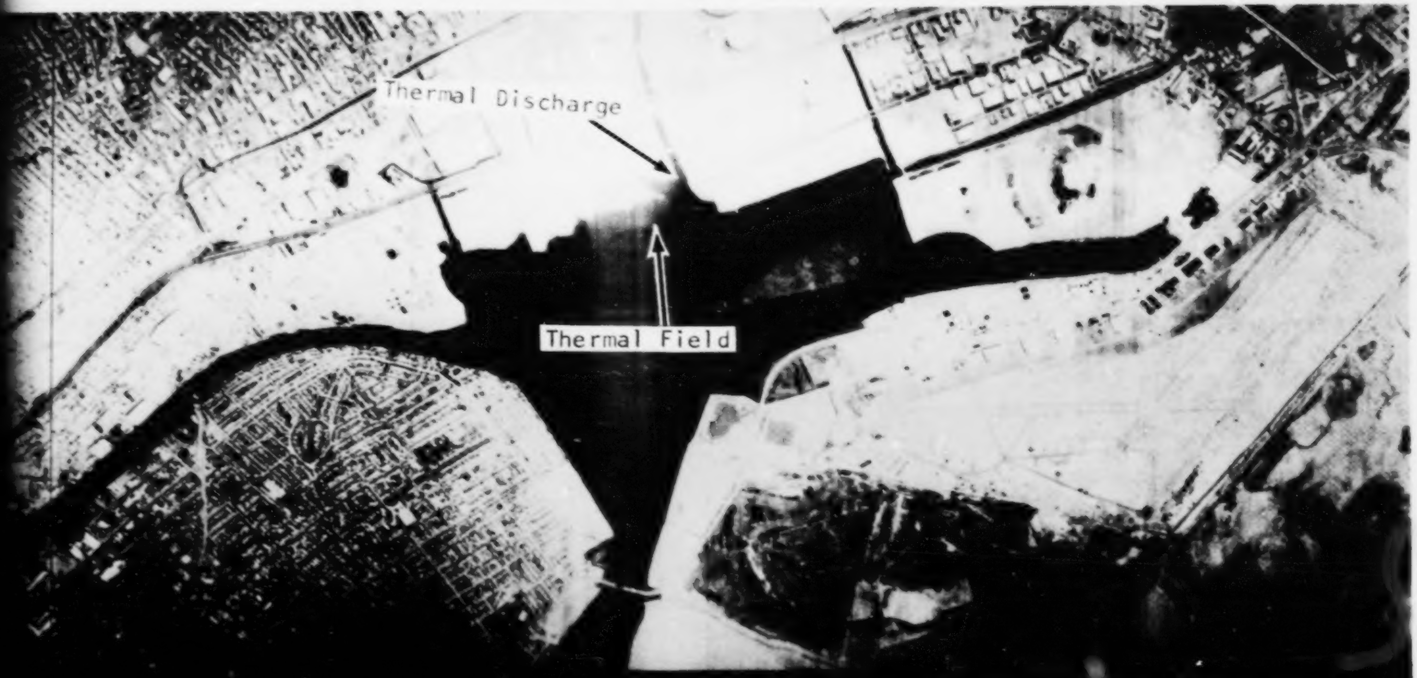
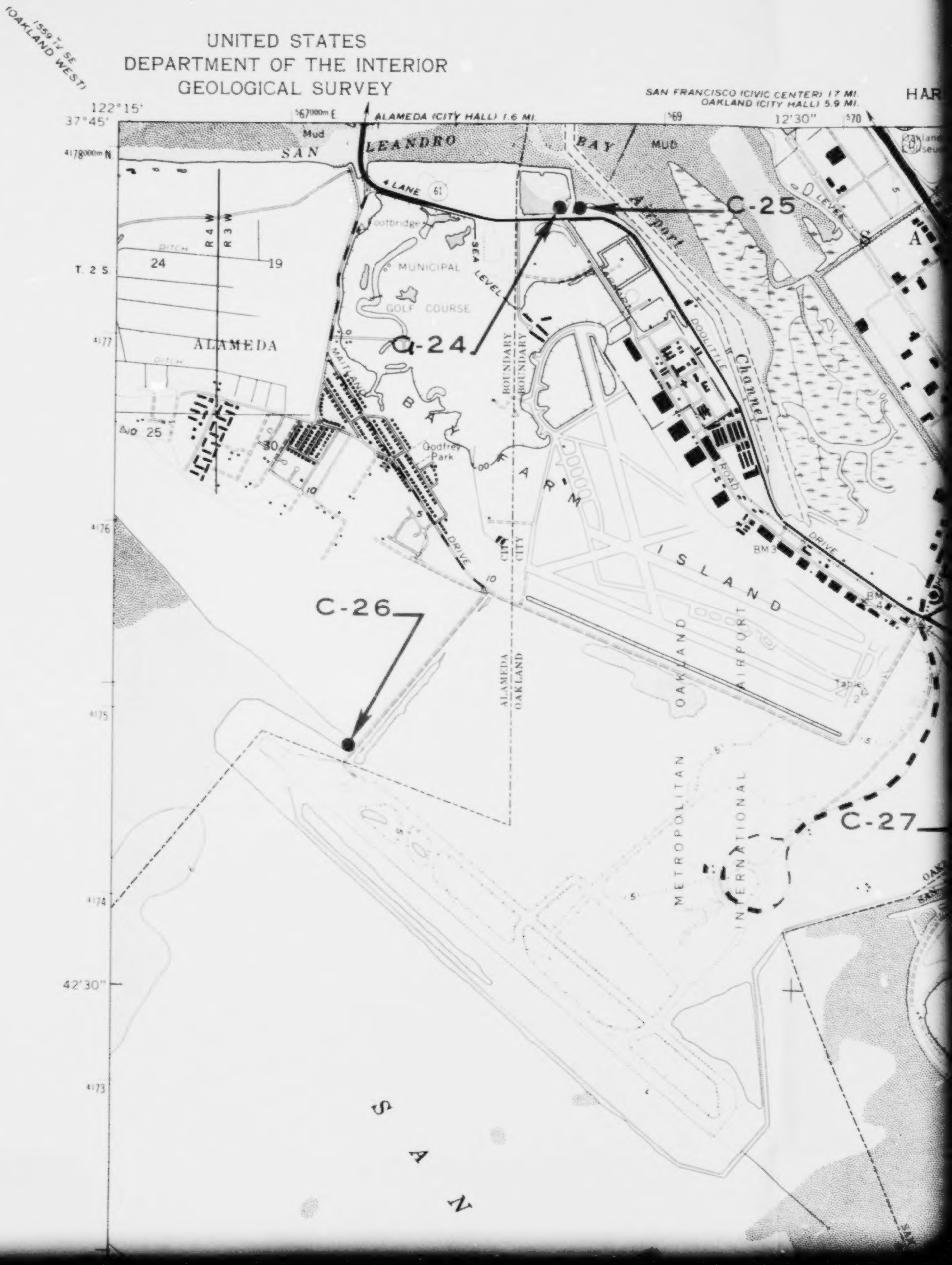
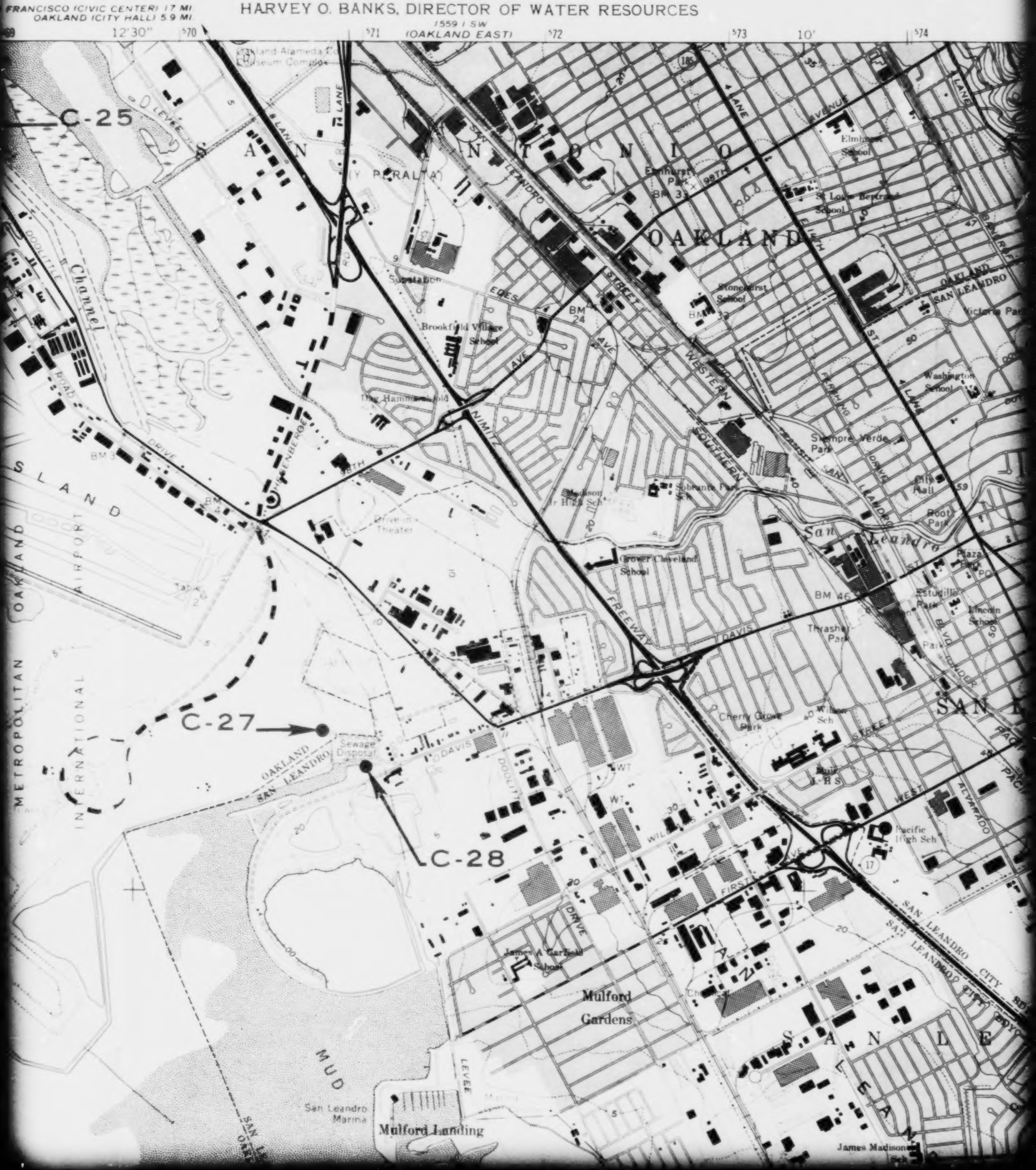

Thermal Discharge
Thermal Field

Figure 38. Thermal Map of Lion Canal and San Leandro Bay

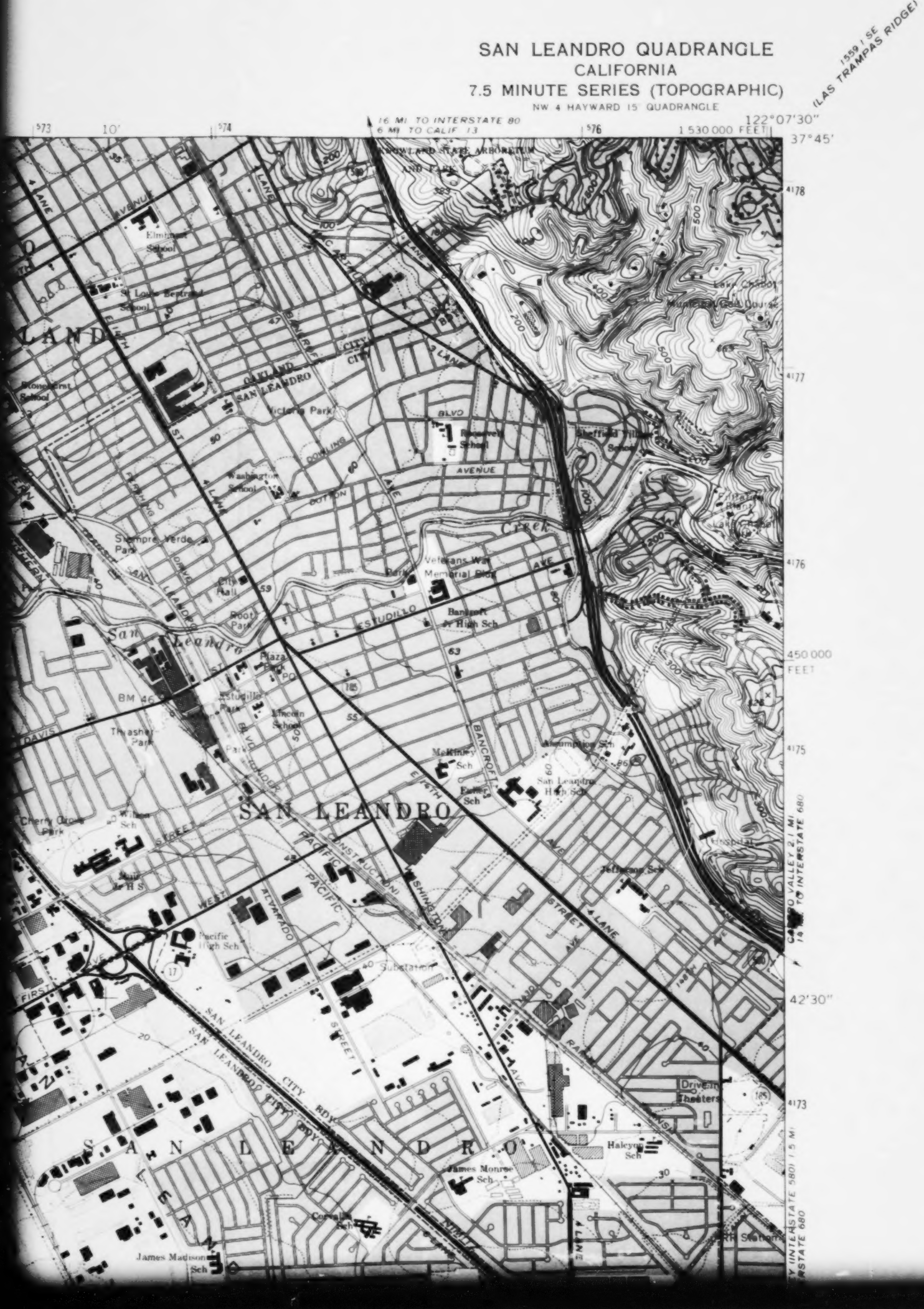
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY


1559 IV SE
(OAKLAND WEST)
122°15'
37°45'
567000m E.
ALAMEDA (CITY HALL) 1.6 MI.
569
12'30"
570
SAN FRANCISCO (CIVIC CENTER) 17 MI.
OAKLAND (CITY HALL) 5.9 MI.
HAR
4178000m N.
4177
4176
4175
4174
42'30"
4173
T. 2 S.
R 4 W
R 3 W
24
19
25
30
Mud
SAN LEANDRO BAY
MUD
4 LANE
61
Footbridge
MUNICIPAL
GOLF COURSE
SEA LEVEL
DITCH
ALAMEDA
MAITLAND
DRIVE
Godfrey Park
BAY FARM ISLAND
BOUNDARY
CITY
ALAMEDA
OAKLAND
Airport
Channel
DOOLITTLE
ROAD
DRIVE
LEVEE
BM 3
BM 4
Tank
OAKLAND AIRPORT
METROPOLITAN
INTERNATIONAL
SAN
C-24
C-25
C-26
C-27

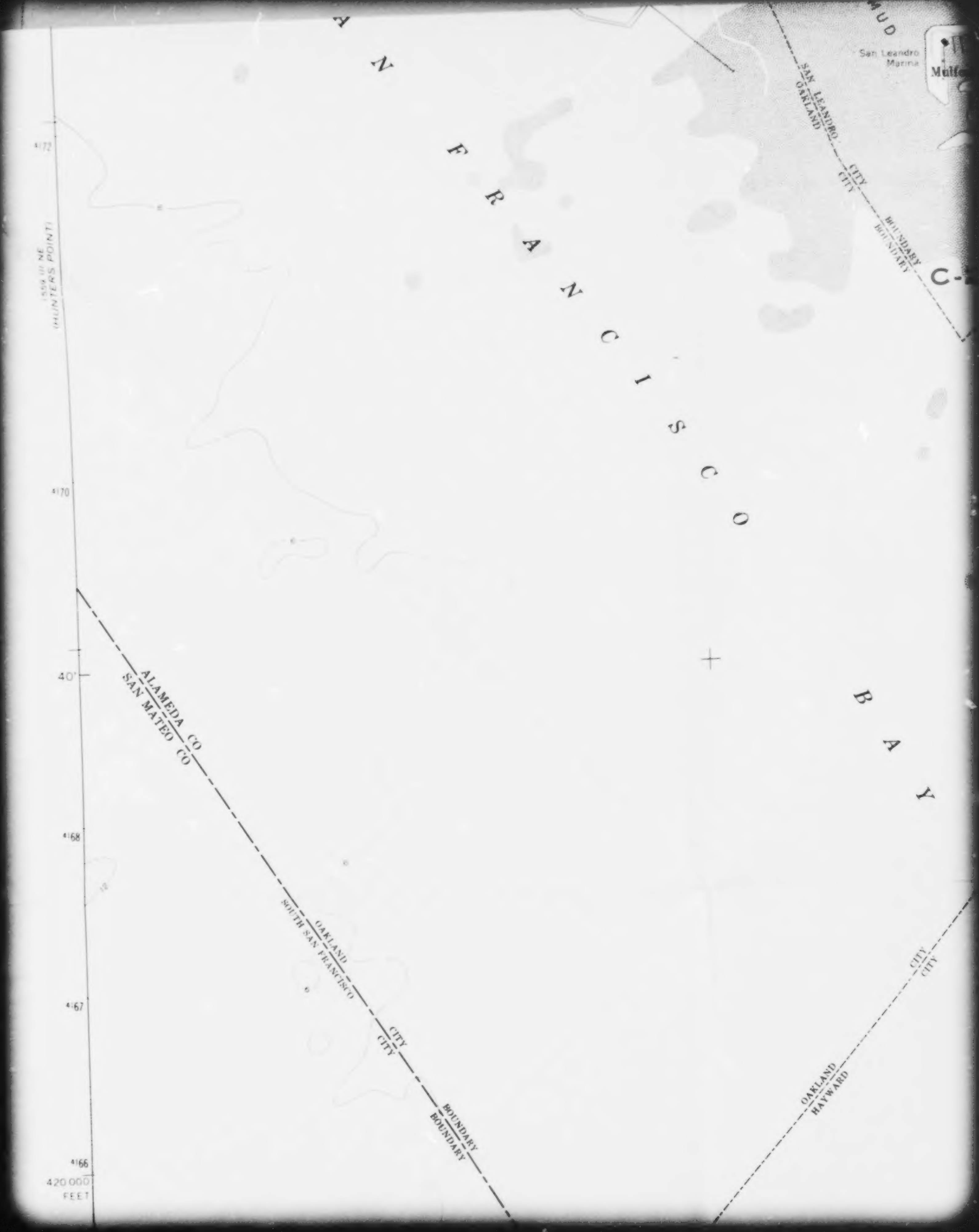
STATE OF CALIFORNIA
EDMUND G. BROWN, GOVERNOR
HARVEY O. BANKS, DIRECTOR OF WATER RESOURCES


FRANCISCO (CIVIC CENTER) 17 MI
OAKLAND (CITY HALL) 5.9 MI
1559 I SW
(OAKLAND EAST)
12'30"
570
571
572
573
10'
574
C-25
C-27
C-28
SAN ANTONIO
OAKLAND
SAN LEANDRO
BAY FARM ISLAND
METROPOLITAN OAKLAND INTERNATIONAL AIRPORT
Channel
Oakland-Alameda Co Coliseum Complex
Elmhurst School
Elmhurst Park
St Louis Bertrand School
Stonehurst School
Brookfield Village School
Substation
Dog Hammerfield
Drive-in Theater
Madison Jr High Sch
Sobrante Park Sch
Grover Cleveland School
Washington School
Siempre Verde Park
City Hall
Root Park
Plaza Park
Estudillo Park
Lincoln School
Thrasher Park
Cherry Grove Park
Wilson Sch
Bancroft Jr H S
Pacific High Sch
James A Garfield School
Mulford Gardens
Sewage Disposal
San Leandro Marina
Mulford Landing
James Madison Sch
MUD
NIMITZ FREEWAY
DAVIS
WESTERN
SOUTHERN
PACIFIC
DOOLITTLE DRIVE
HEGENBERGER
LEVEE
EDES AVE
98TH
OAKLAND
SAN LEANDRO
SAN LEANDRO CITY BOUNDARY
BM 24
BM 46
BM 33
San Leandro Creek

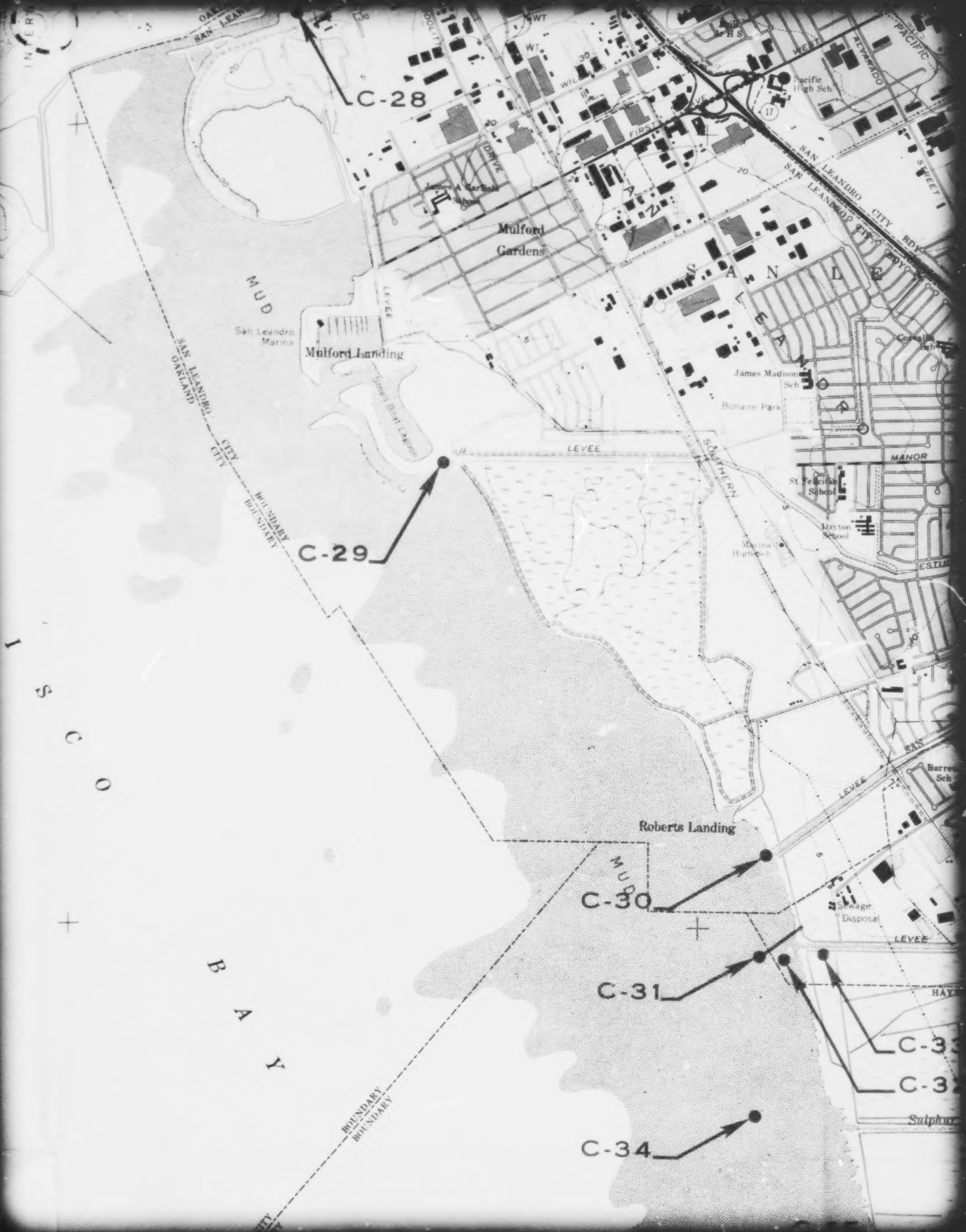
SAN LEANDRO QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW 4 HAYWARD 15' QUADRANGLE

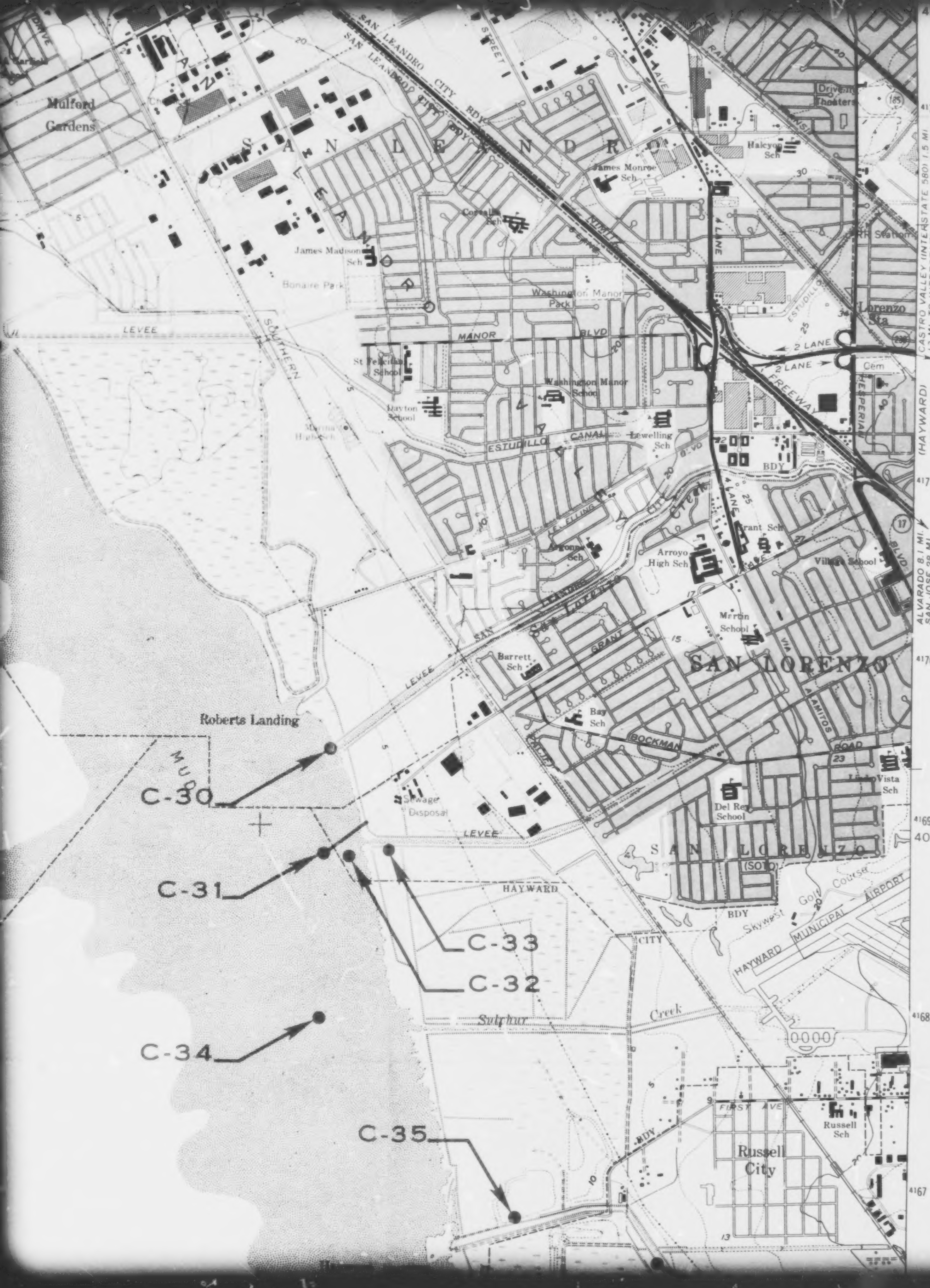


1559 I SE
(LAS TRAMPAS RIDGE)
16 MI. TO INTERSTATE 80
6 MI. TO CALIF. 13
573
10'
574
576
1 530 000 FEET
122°07'30"
37°45'
4178
4177
4176
450 000
FEET
4175
42'30"
4173
KNOWLAND STATE ARBORETUM AND PARK
Elmhurst School
St Louis Bertrand School
Stonehurst School
OAKLAND
SAN LEANDRO
CITY
Victoria Park
Roosevelt School
Washington School
Siempre Verde Park
City Hall
Root Park
Veterans War Memorial Bldg
Bancroft Jr High Sch
Lake Chabot
Municipal Golf Course
Sheffield Village School
Filtration Plant
Creek
San Leandro
ESTUDILLO
Plaza
PO
Estudillo Park
Lincoln School
Thrasher Park
BM 46
DAVIS
McKinley Sch
Assumption Sch
San Leandro High Sch
Fairest Sch
SAN LEANDRO
Cherry Grove Park
Wilson Sch
Jefferson Sch
Hospital
Pacific High Sch
Substation
ALVARADO
WASHINGTON
PACIFIC
CONSTRUCTION
SAN LEANDRO CITY BDY
Drive-in Theaters
Halcyon Sch
James Monroe Sch
Corvallis Sch
James Madison Sch
S A N L E A N D R O
Station
CASTRO VALLEY 2 MI
14 MI. TO INTERSTATE 680
(INTERSTATE 580) 1.5 MI
INTERSTATE 680
4 LANE
AVENUE
BLVD
STREET

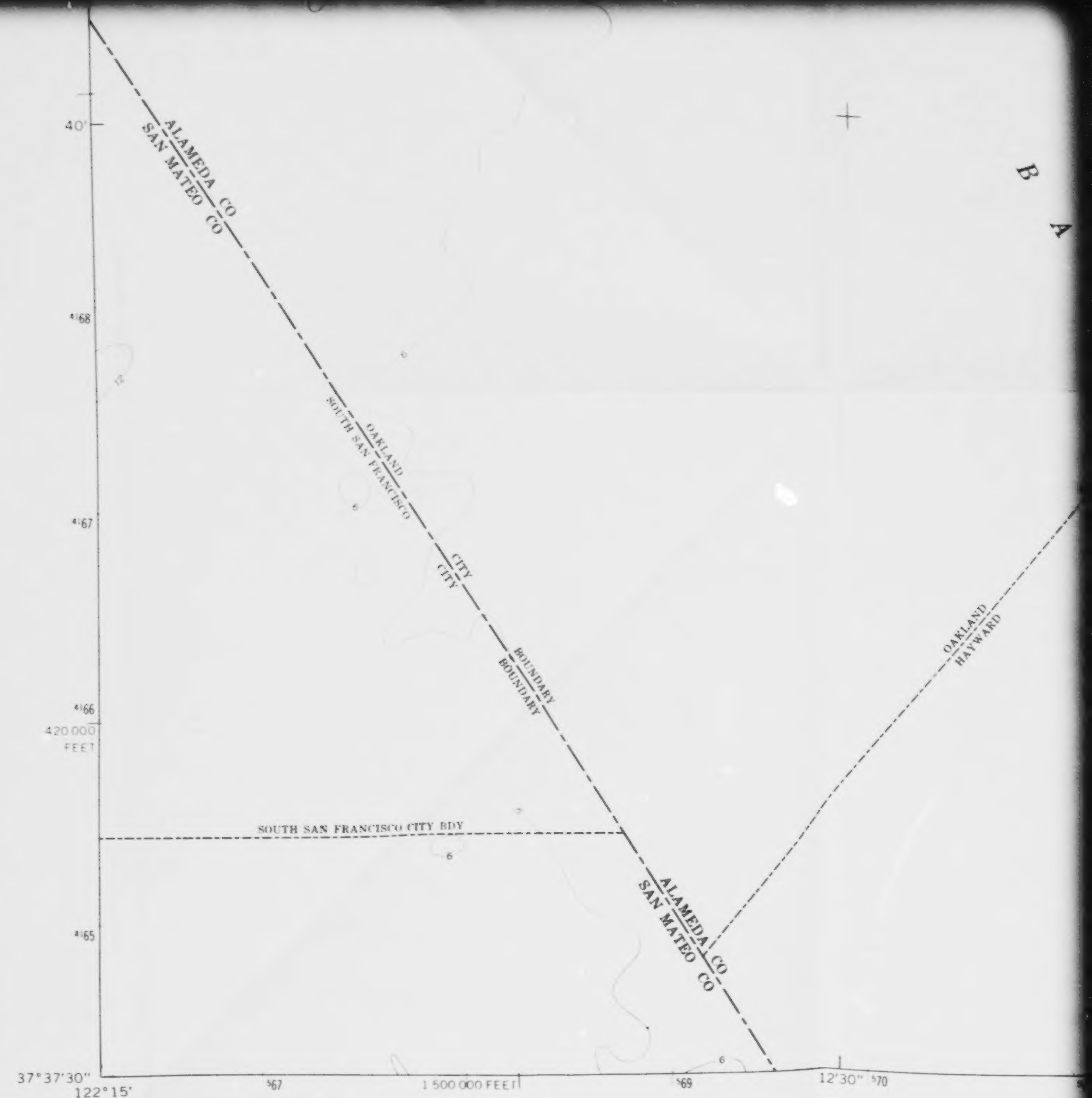


A N F R A N C I S C O
B A Y
MUD
San Leandro Marina
Mulf
SAN LEANDRO CITY BOUNDARY
OAKLAND CITY BOUNDARY
C-
1559 III NE
(HUNTERS POINT)
4172
4170
40'
4168
4167
4166
420 000
FEET
ALAMEDA CO
SAN MATEO CO
OAKLAND CITY BOUNDARY
SOUTH SAN FRANCISCO CITY BOUNDARY
OAKLAND CITY
HAYWARD CITY


C-28
C-29
C-30
C-31
C-32
C-33
C-34
Mulford Gardens
James A Garfield School
Mulford Landing
San Leandro Marina
Small Boat Lagoon
LEVEE
MUD
SAN LEANDRO CITY BOUNDARY
OAKLAND CITY BOUNDARY
ISCO BAY
SAN LEANDRO
Pacific High Sch
James Madison Sch
Bonaire Park
St Felicitas School
Dayton School
Marina High Sch
Roberts Landing
Sewage Disposal
Barrett Sch
Corvallis Sch
MANOR
SOUTHERN
FIRST
WEST
ALVARADO
PACIFIC
SAN LEANDRO CITY BDY
Sulphur



C-30
C-31
C-32
C-33
C-34
C-35
SAN LEANDRO
SAN LORENZO
Mulford Gardens
Roberts Landing
MUD
Sewage Disposal
LEVEE
HAYWARD
CITY
BDY
Sulphur Creek
Russell City
Russell Sch
FIRST AVE
HAYWARD MUNICIPAL AIRPORT
Skywest Golf Course
Del Rey School
Lindo Vista Sch
Bay Sch
Barrett Sch
Martin School
Arroyo High Sch
Village School
Grant Sch
Lewelling Sch
Washington Manor School
Washington Manor Park
Dayton School
St Felicitas School
Marina High Sch
Bonaire Park
James Madison Sch
Corvallis Sch
James Monroe Sch
Halcyon Sch
Drive-in Theaters
Lorenzo Sta
MANOR BLVD
ESTUDILLO CANAL
BOCKMAN ROAD
VIA ALAMITOS
GRANT
FREEWAY
HESPERIAN
SOUTHERN
PACIFIC
SAN LEANDRO CITY BDY
2 LANE
Cem
4173
4171
4170
4169
4168
4167
42'30"
40'
CASTRO VALLEY (INTERSTATE 580) 1.5 MI.
13 MI. TO INTERSTATE 680
(HAYWARD)
1559 II NE
ALVARADO 8.1 MI.
SAN JOSE 28 MI.


B
A
ALAMEDA CO
SAN MATEO CO
OAKLAND
SOUTH SAN FRANCISCO
CITY
CITY
BOUNDARY
BOUNDARY
OAKLAND
HAYWARD
SOUTH SAN FRANCISCO CITY BDY
ALAMEDA CO
SAN MATEO CO
6
12
6
6
6
40'
4168
4167
4166
420 000
FEET
4165
37°37'30"
122°15'
567
1 500 000 FEET
569
12'30" 570
(SAN MATEO)
1559 III SE

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods and by planetable surveys 1947. Revised from aerial photographs taken 1958. Field check 1959

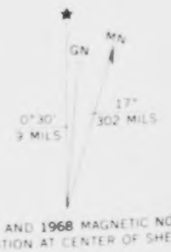
Hydrography compiled from USC&GS charts 5531 (1956) and 5535 (1958)

Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

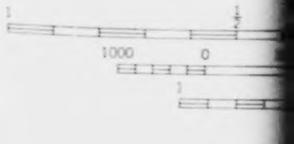
Red tint indicates areas in which only landmark buildings are shown

Data shown in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban areas

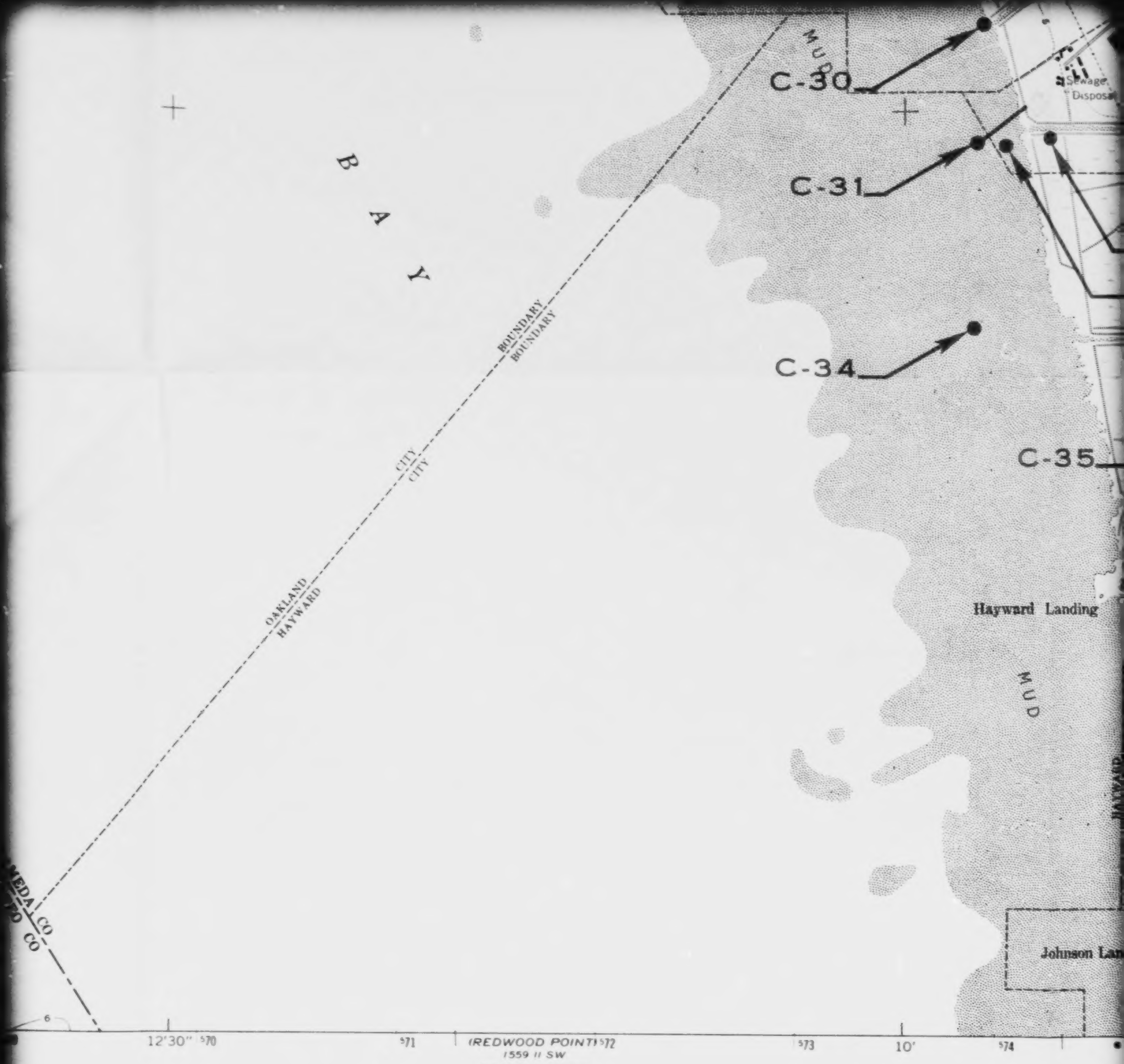

GN
MN
0°30'
9 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



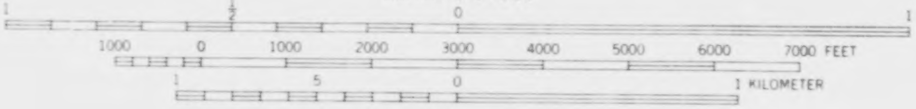
DEPTH CURV
SHORELINE SH

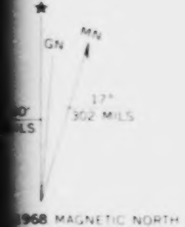
THIS MAP CO
FOR SALE BY U. S. GEOLOGICAL
A FOLDER DESCRIBING


MUD
C-30
Sewage Disposal
C-31
B A Y
C-34
C-35
BOUNDARY
BOUNDARY
CITY
CITY
OAKLAND
HAYWARD
Hayward Landing
MUD
Johnson Lan
MEDA CO
CO
6
12'30"
570
571
572
573
10'
574

(REDWOOD POINT)
1559 II SW

SCALE 1:24000


1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
.5
0
1 KILOMETER


GN
MN
17°
302 MILS

1968 MAGNETIC NORTH
AT CENTER OF SHEET

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 5 FEET

QUADRANGLE LOCATIO

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

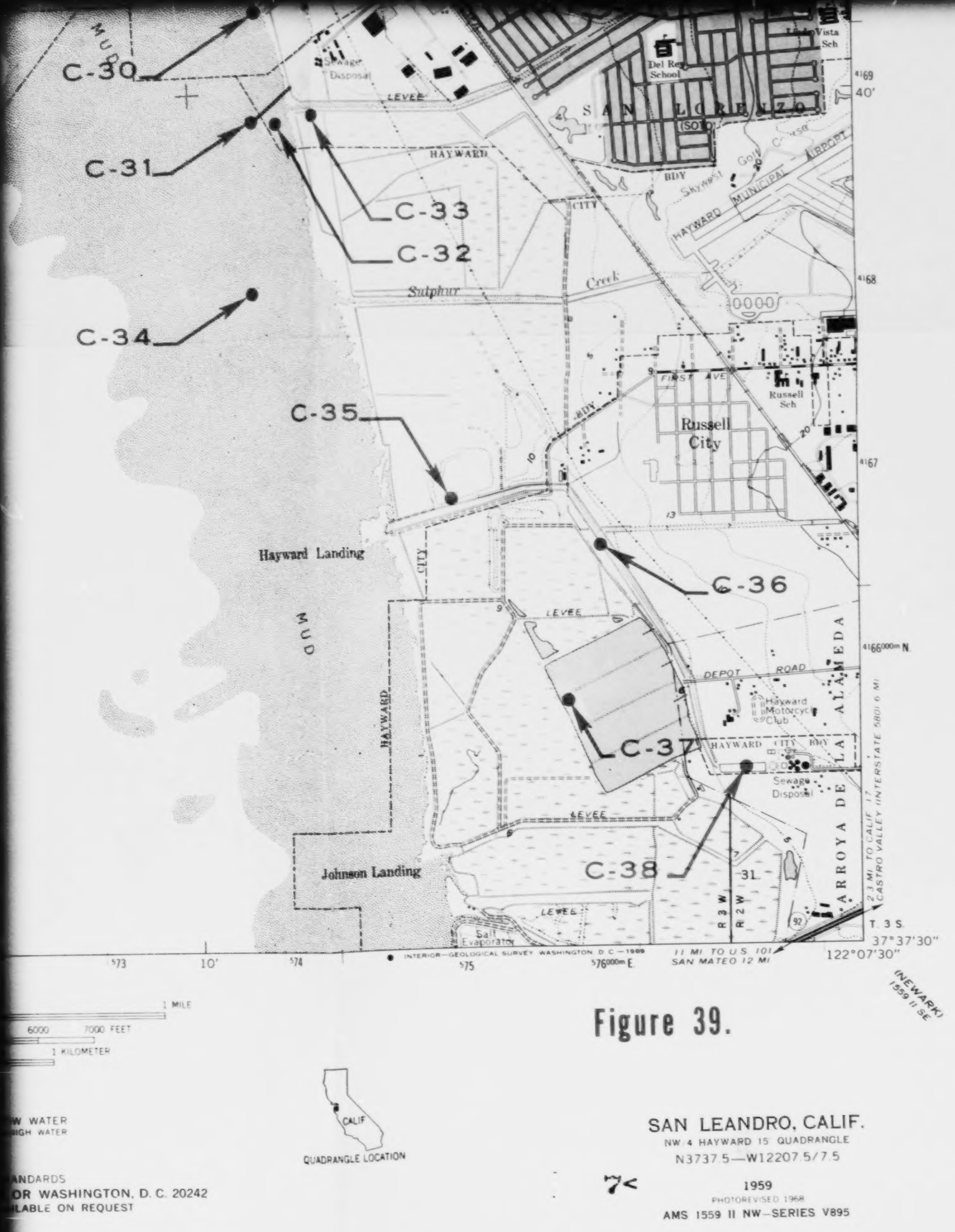

C-30
C-31
C-32
C-33
C-34
C-35
C-36
C-37
C-38
MUD
Sewage Disposal
LEVEE
HAYWARD
CITY
BDY
Del Rey School
SAN LORENZO
(SOLO)
Skywest Golf Course
HAYWARD MUNICIPAL AIRPORT
Sulphur Creek
FIRST AVE
Russell Sch
Russell City
Hayward Landing
Johnson Landing
DEPOT ROAD
Hayward Motorcycle Club
HAYWARD CITY BDY
ARROYA DE LA ALAMEDA
Salt Evaporator
R 3 W
R 2 W
31
92
T. 3 S.
37°37'30"
122°07'30"
4169
40'
4168
4167
4166000m N.
573
10'
574
575
576000m E.
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D C—1969
11 MI. TO U.S. 101
SAN MATEO 12 MI
2.3 MI. TO CALIF. 17
CASTRO VALLEY (INTERSTATE 580) 6 MI
(NEWARK)
1559 II SE
1 MILE
6000
7000 FEET
1 KILOMETER
W WATER
IGH WATER
CALIF
QUADRANGLE LOCATION
ANDARDS
OR WASHINGTON, D. C. 20242
ILABLE ON REQUEST
SAN LEANDRO, CALIF.
NW/4 HAYWARD 15' QUADRANGLE
N3737.5—W12207.5/7.5
1959
PHOTOREVISED 1968
AMS 1559 II NW—SERIES V895
7<

Figure 39.

C-24	July -	There was a discharge present, at the time of flight, from the pond to the airport channel. There was no associated discoloration.
C-25	July -	A drainage ditch was discharging from the asymmetric pond, under the highway, into the airport channel. There was no discoloration.
C-26	April -	There was an outfall from inside the levee to the Bay. There was no discharge at the time of flight.
C-27	April -	Run off from an automobile junkyard entered this ditch.
C-28	April -	The effluent from the STP was yellow-brown in color.
	July -	There was no discoloration.
C-29	April -	The discharge from this canal was a yellow-brown color.
C-30	April -	The outflow from San Lorenzo Creek was a yellow-brown color.
C-31	April -	A subsurface STP outfall was located in this 275 meters (900 feet) from shore. There was no apparent discharge at the time of flight.
	July -	The discharge was active.
C-32	April -	The color of this immediate area was dark brown.
	July -	The characteristic color of this area was dark gray-brown indicating a dissolved oxygen depression.
C-33	April -	A drainage conduit was discharging water into the ditch from behind the levee.
	July -	There were two surface skimmers across the ditch at this point.

8<

C-34 April - The characteristics of a submerged outfall were recorded at this point which was approximately 400 meters (1300 feet) from shore.

C-35 July - The color of the water in this canal was a gray-green.

C-36 July - Characteristics associated with low dissolved oxygen were predominant in this section of the canal.

C-37 July - These ponds displayed characteristics of being septic.

C-38 July - The effluent from a clarifier within the Hayward STP, showed characteristics of being poorly treated. This area is shown in Figure 40.

Note: Indication numbers C-39 through C-53 appear in Figure 41, the San Mateo map.

C-39 July - An orange-brown substance appeared to originate at this point although no actual discharge was detected. A plume extended nearly 245 meters (800 feet) southward along the shore of the slough as shown in Figure 41.

C-40 July - Two pipes entered the water at this point. There was no indication of a discharge (discoloration, capillary wave pattern alterations) detected in the optical imagery. The thermal data showed a warm spot in this immediate area as indicated in Figure 42. There were two clarifiers near the shore.

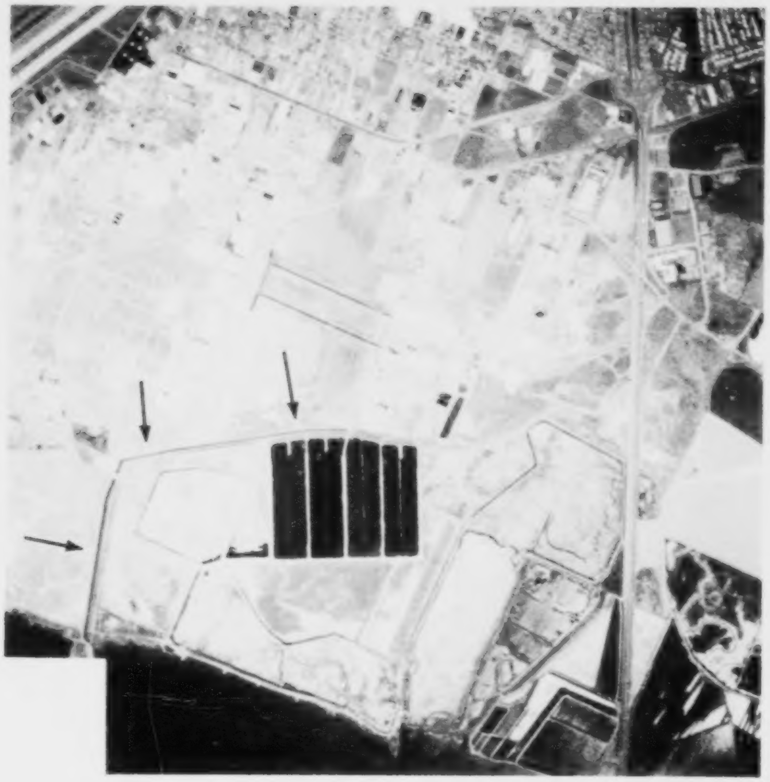
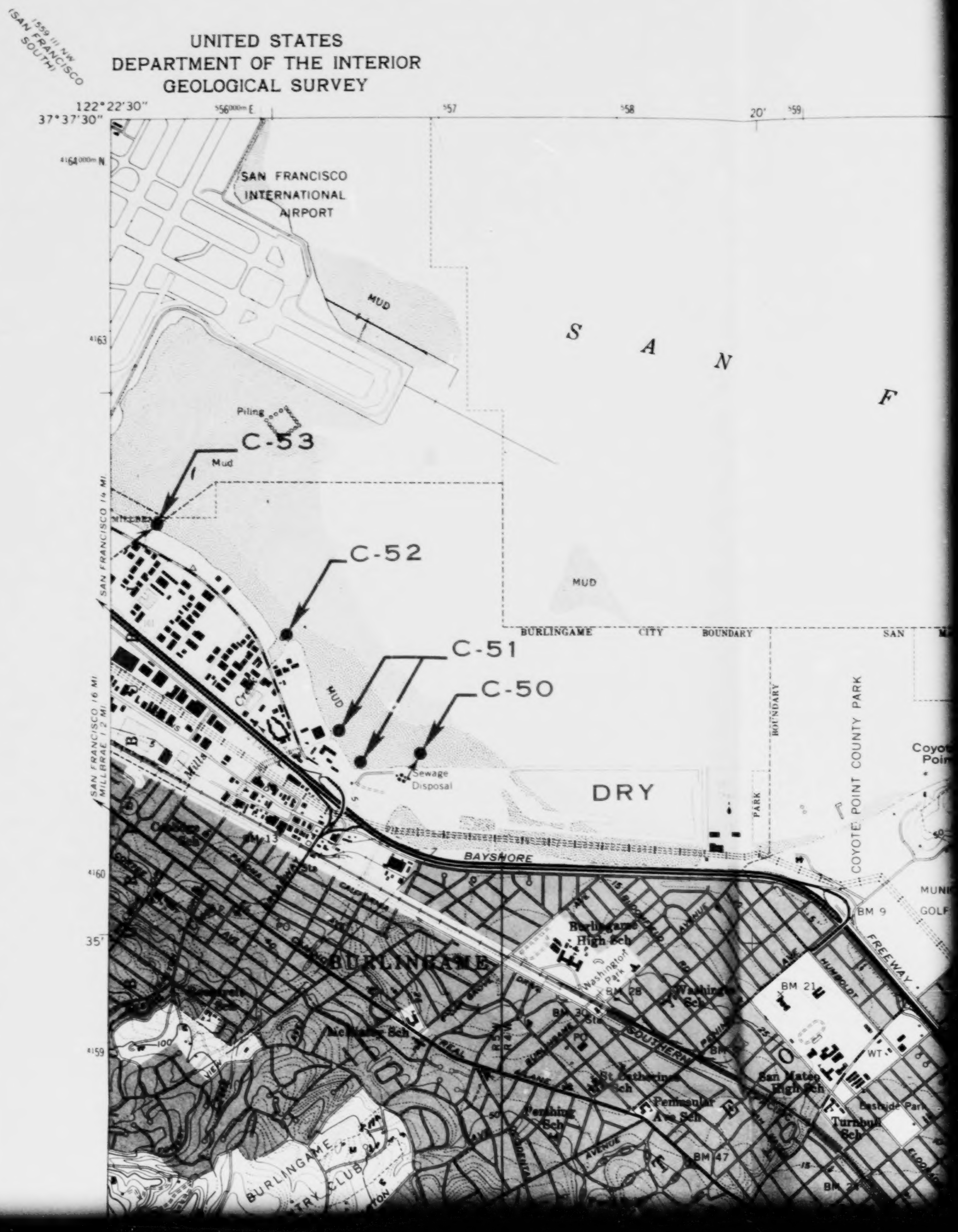
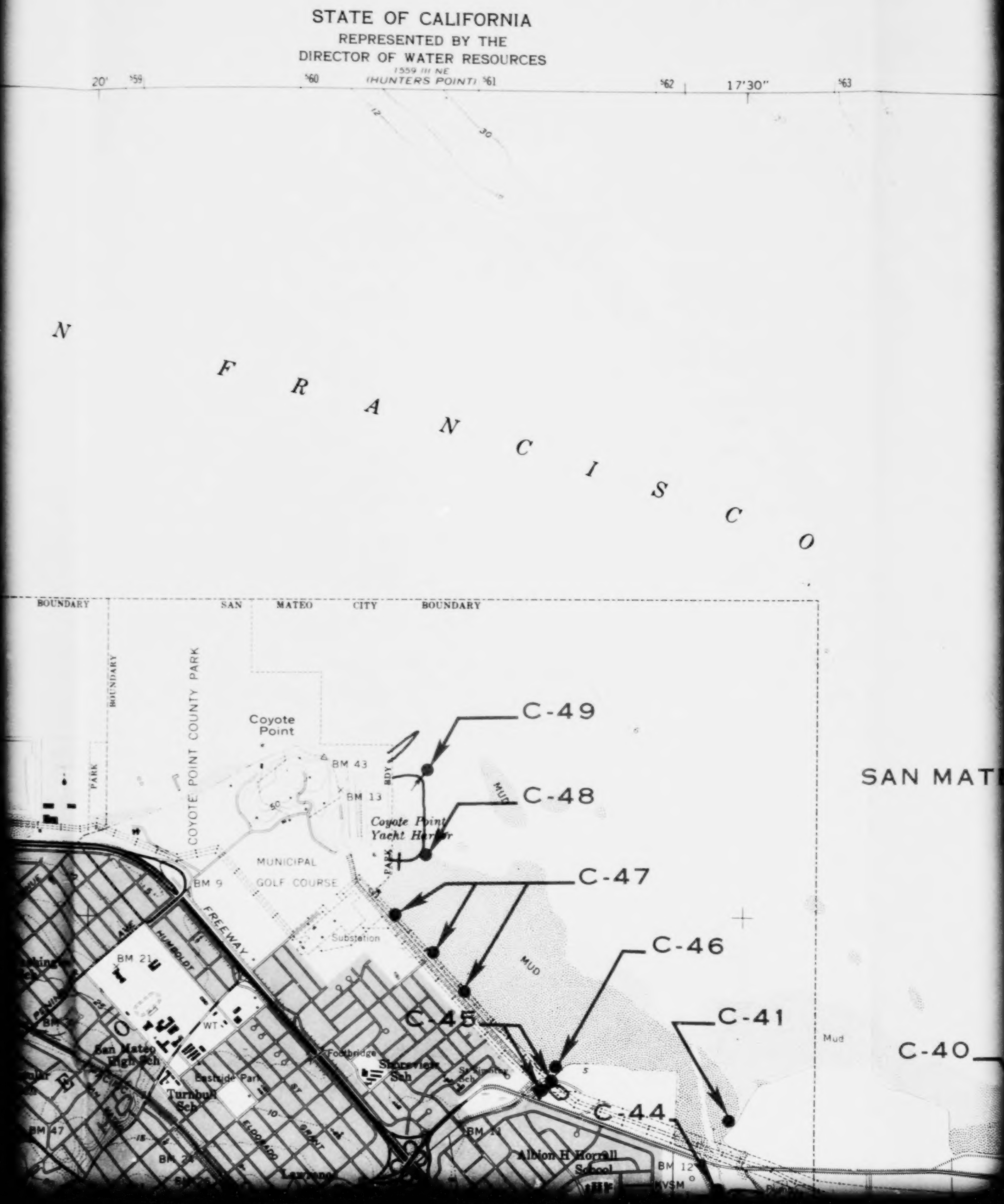


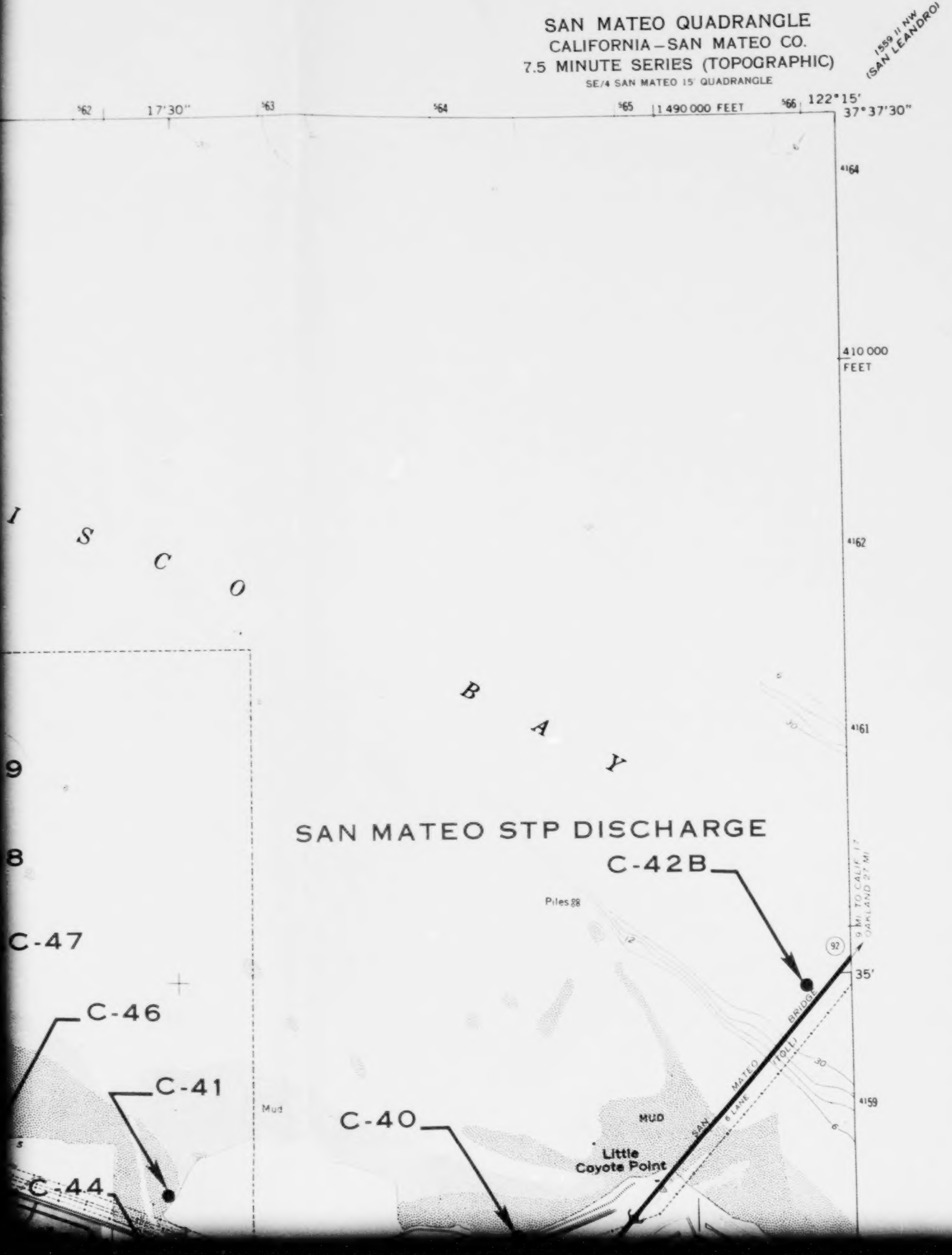
Figure 40. Photograph of Hayward STP

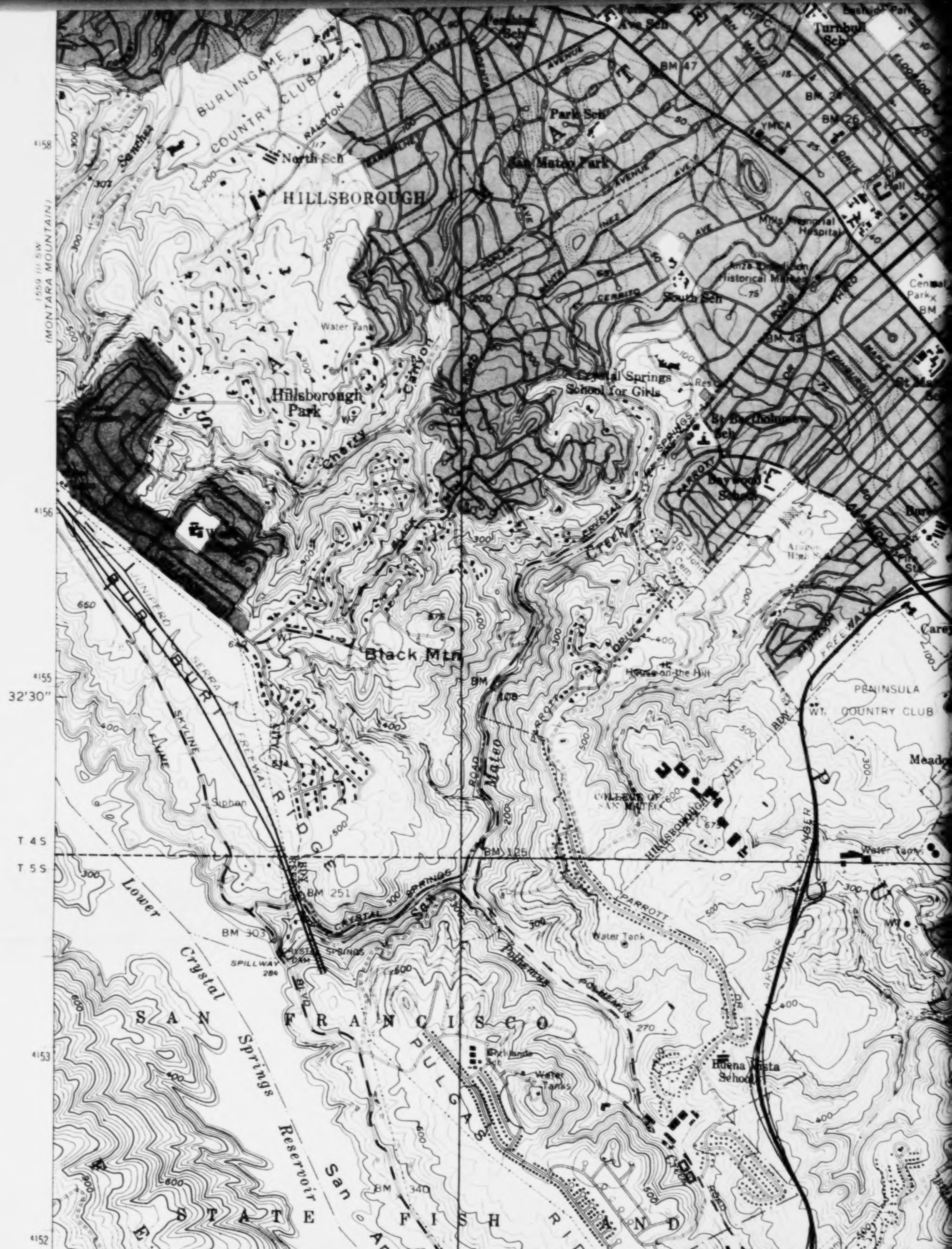
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY


1559 III NW
(SAN FRANCISCO
SOUTH)
122°22'30"
37°37'30"
556000m E
557
558
20'
559
4164000m N
4163
4160
35'
4159
SAN FRANCISCO
INTERNATIONAL
AIRPORT
MUD
Piling
Mud
C-53
C-52
C-51
C-50
S A N F
MUD
BURLINGAME CITY BOUNDARY
SAN
BOUNDARY
PARK
COYOTE POINT COUNTY PARK
Sewage
Disposal
DRY
SAN FRANCISCO 14 MI
SAN FRANCISCO 16 MI
MILLBRAE 1.2 MI
BM 13
BAYSHORE
BM 9
FREEWAY
HUMBOLDT
BURLINGAME
Burlingame
High Sch
Washington
Park
Washington
Sch
BM 28
BM 30
BM 21
SOUTHERN
WT
San Mateo
High Sch
Eastside Park
Turnbull
Sch
St Catherines
Sch
Peninsular
Ave Sch
Pershing
Sch
BM 47
BURLINGAME
TRY CLUB

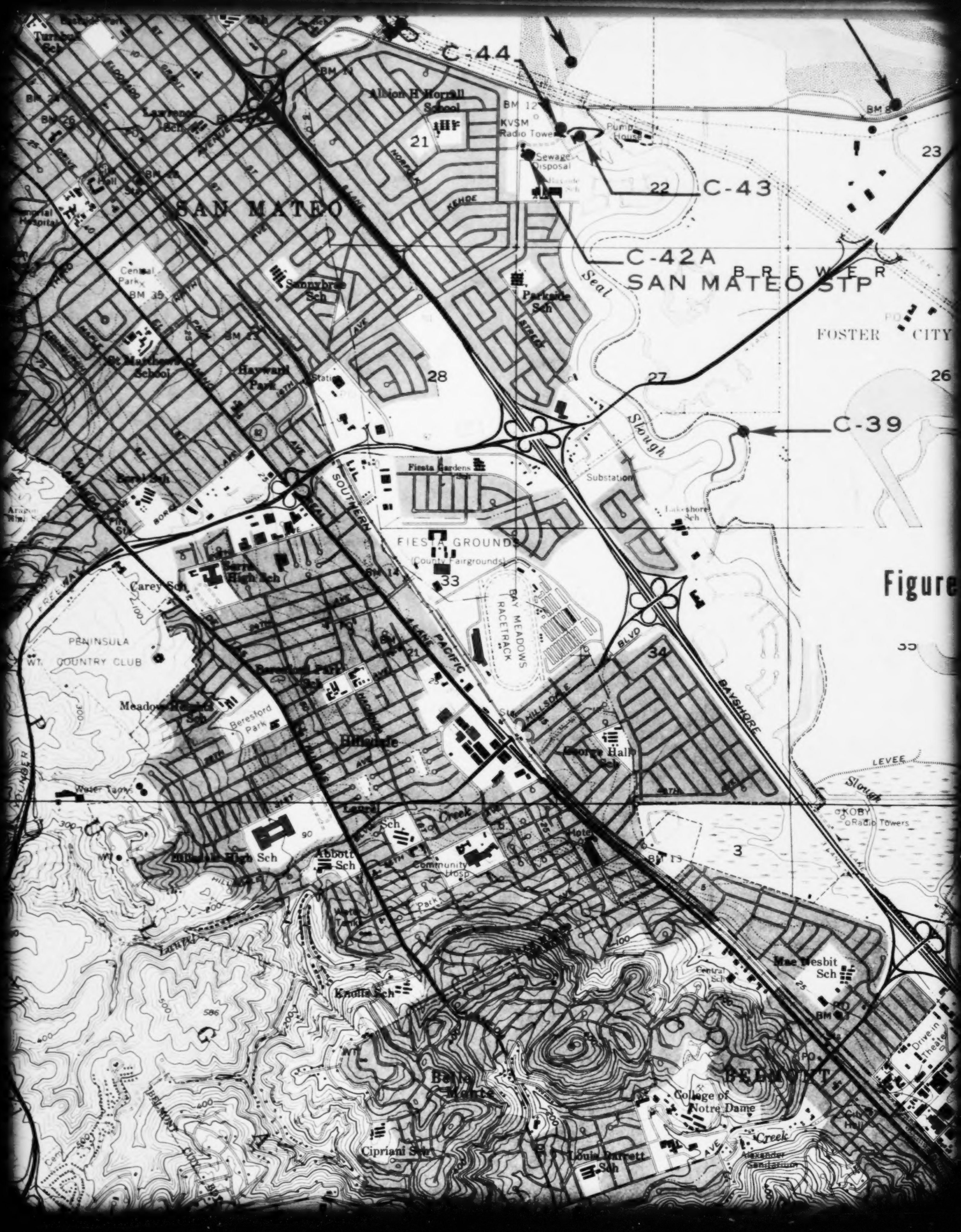

STATE OF CALIFORNIA
REPRESENTED BY THE
DIRECTOR OF WATER RESOURCES
1559 III NE
(HUNTERS POINT)
20'
17'30"
N
F R A N C I S C O
BOUNDARY
SAN MATEO CITY BOUNDARY
COYOTE POINT COUNTY PARK
Coyote Point
BM 43
BM 13
Coyote Point Yacht Harbor
MUNICIPAL GOLF COURSE
BM 9
FREEWAY
Substation
MUD
Mud
SAN MATE
C-49
C-48
C-47
C-46
C-45
C-44
C-41
C-40
San Mateo High Sch
Turnbull Sch
Eastside Park
Shoreview Sch
Footbridge
Albion H Horrall School
BM 21
BM 47
BM 12
HUMBOLDT
ELDORADO
GRANT

SAN MATEO QUADRANGLE
CALIFORNIA–SAN MATEO CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 SAN MATEO 15' QUADRANGLE


1559 II NW
(SAN LEANDRO)
562
17'30"
563
564
565
1 490 000 FEET
566
122°15'
37°37'30"
4164
410 000
FEET
4162
4161
4159
35'
I S C O
B A Y
SAN MATEO STP DISCHARGE
C-42B
Piles 88
9
8
C-47
C-46
C-41
C-44
C-40
Mud
MUD
Little
Coyote Point
SAN MATEO BRIDGE
6 LANE (TOLL)
92
9 MI. TO CALIF. 17
OAKLAND 27 MI.
12
30
6



4158
1559 III SW
(MONTARA MOUNTAIN)
4156
4155
32'30"
T 4 S
T 5 S
4153
4152
BURLINGAME COUNTRY CLUB
North Sch
HILLSBOROUGH
Hillsborough Park
Water Tank
Cherry Canyon
Park Sch
San Mateo Park
Turnbull Sch
BM 47
YMCA
Mills Memorial Hospital
Anza Expedition Historical Marker
South Sch
Central Park
Crystal Springs School for Girls
St Bartholomews Sch
Baywood School
Black Mtn
House-on-the-Hill
PENINSULA COUNTRY CLUB
COLLEGE OF SAN MATEO
Water Tanks
Water Tank
BM 125
BM 251
BM 303
BM 340
CRYSTAL SPRINGS DAM
SPILLWAY
JUNIPERO SERRA FREEWAY
SKYLINE
Siphon
Lower Crystal Springs Reservoir
SAN FRANCISCO
STATE FISH AND
PULGAS RIDGE
San Andreas
Buena Vista School
El Portal del Sol


C-44
C-43
C-42A
C-39
BREWER
SAN MATEO STP
SAN MATEO
FOSTER CITY
BELMONT
KVSM Radio Tower
Sewage Disposal
Pump House
Seal Slough
FIESTA GROUNDS
(County Fairgrounds)
BAY MEADOWS RACETRACK
PENINSULA COUNTRY CLUB
BAYSHORE
SOUTHERN PACIFIC
Substation
Lakeshore Sch
Parkside Sch
Fiesta Gardens Sch
Hayward Park
Central Park
St Matthews School
Sunnybrae Sch
Borel Sch
Carey Sch
San Mateo High Sch
Beresford Park
Meadow Heights Sch
Hillsdale
Hillsdale High Sch
Abbott Sch
Community Hosp
George Hall Sch
Knolls Sch
Belle Monte
Cipriani Sch
Louis Barrett Sch
College of Notre Dame
Mae Nesbit Sch
Central Sch
Drive-in Theater
KOBY Radio Towers
Albion H Horrall School
21
22
23
26
27
28
33
34
3
LEVEE
Slough

Figure

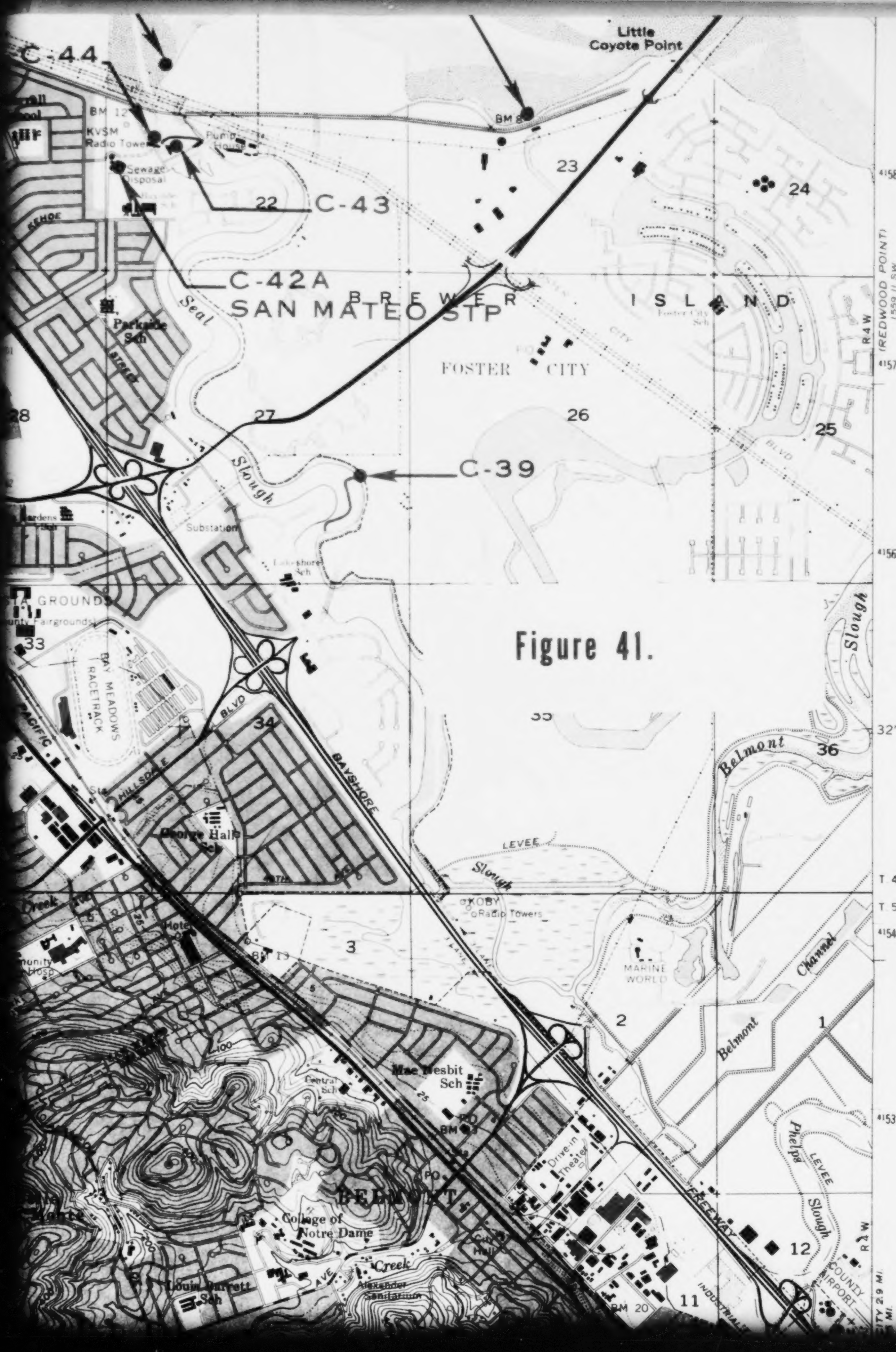
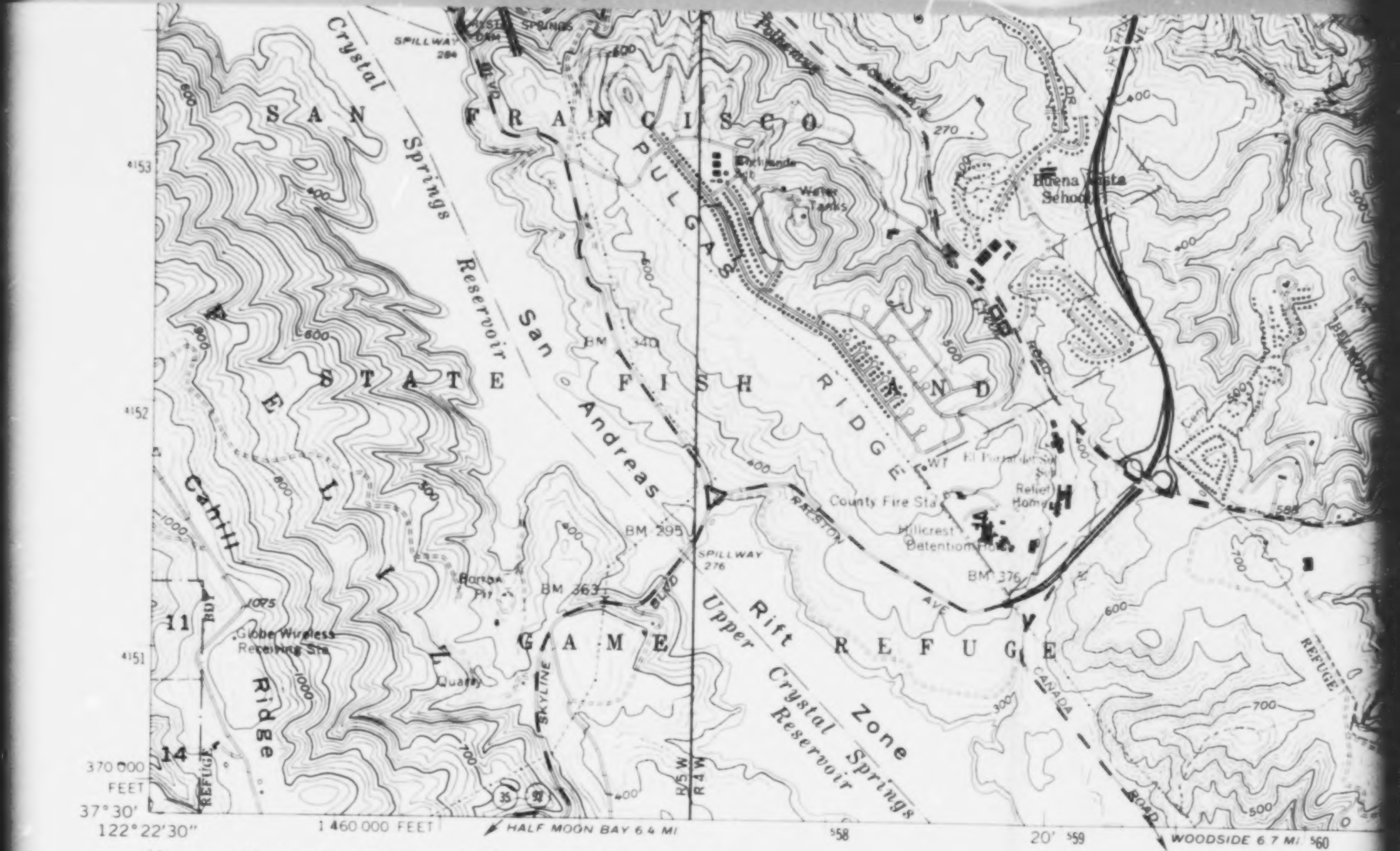

C-44
C-43
C-42A
SAN MATEO STP
C-39
Little Coyote Point
KVSM Radio Tower
Pump House
Sewage Disposal
BREWER ISLAND
FOSTER CITY
Foster City Sch
Parkside Sch
Seal Slough
Substation
Lakeshore Sch
BAY MEADOWS RACETRACK
County Fairgrounds
George Hall Sch
BAYSHORE
HILLSIDE BLVD
LEVEE
Slough
KOBY Radio Towers
MARINE WORLD
Belmont Slough
Belmont Channel
Phelps Slough
Mac Nesbit Sch
Central Sch
Drive-in Theater
BELMONT
College of Notre Dame
City Hall
Creek
Alexander Sanitarium
Louis Barrett Sch
FREEWAY
INDUSTRIAL
COUNTY AIRPORT
BM 12
BM 8
BM 13
BM 20
22
23
24
25
26
27
28
33
34
35
36
3
2
1
11
12
4158
4157
4156
4154
4153
32'30"
T. 4 S
T. 5 S
R 4 W
(REDWOOD POINT)
1559 II SW

Figure 41.


SAN FRANCISCO
STATE FISH AND GAME REFUGE
Crystal Springs Reservoir
San Andreas
Upper Crystal Springs Reservoir
Rift Zone
PULGAS RIDGE
Cahill Ridge
SPILLWAY 284
SPILLWAY 276
BM 340
BM 295
BM 363
BM 376
Water Tanks
Buena Vista School
El Portal
County Fire Sta
Relief Home
Hillcrest Detention Home
Globe Wireless Receiving Sta
Borrow Pit
Quarry
SKYLINE
RALSTON AVE
CANADA ROAD
R 5 W R 4 W
4153
4152
4151
11
14
370 000 FEET
37°30′
122°22′30″
1 460 000 FEET
HALF MOON BAY 6.4 MI
558
20′ 559
WOODSIDE 6.7 MI 560
HALF MOON BAY 1558 IV NW

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1946. Field checked 1947. Revised from aerial photographs taken 1956. Field checked 1956

Selected hydrographic data compiled from USC&GS Chart 5531 (1956) This information is not intended for navigational purposes

Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

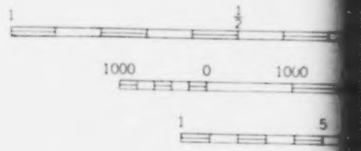
Red tint indicates areas in which only landmark buildings are shown

Data shown in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban areas

GN
MN
0°25′
7 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET


1
½
1000
0
1000
1
5

CO

DASHED

DEPTH CURVES

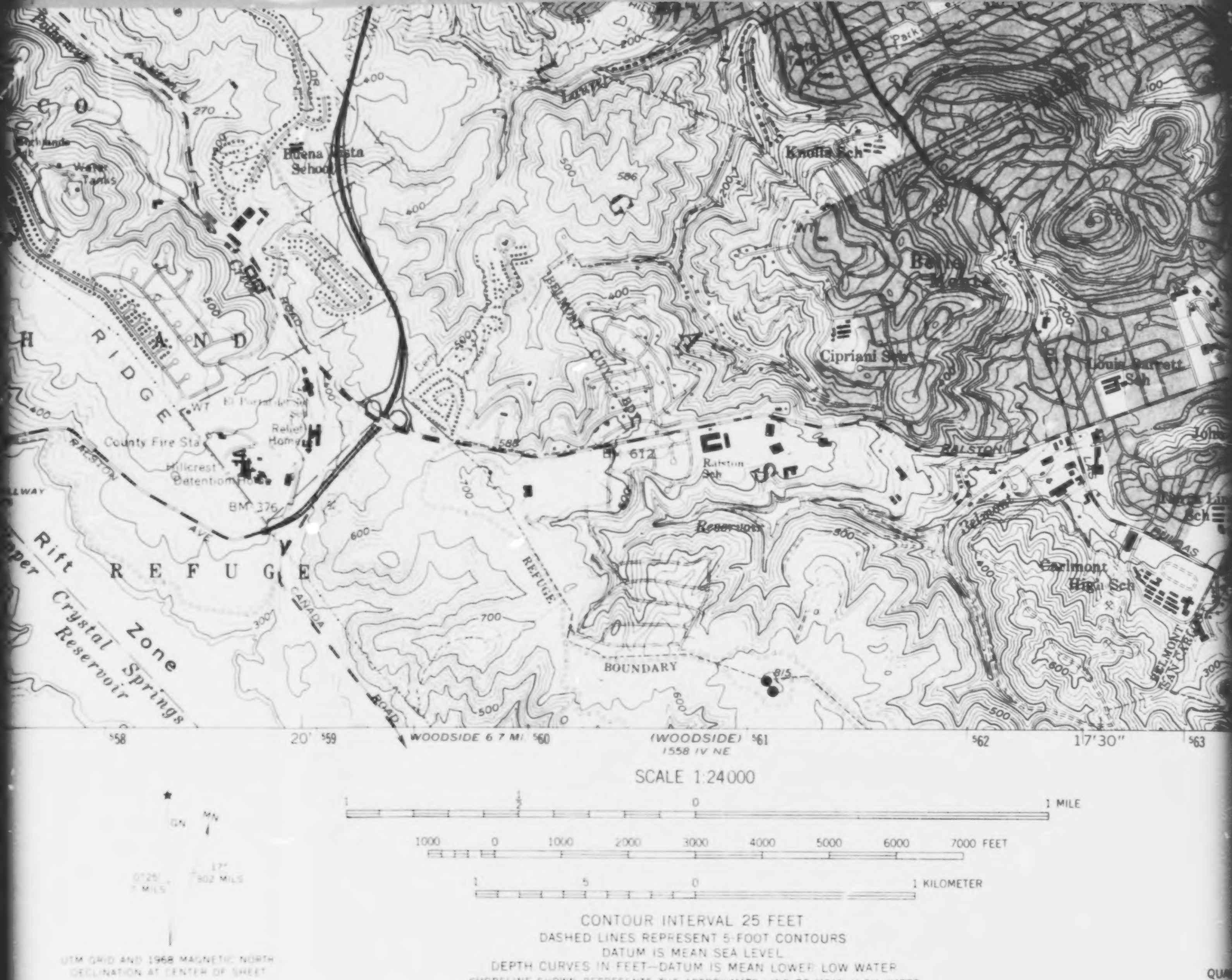
SHORELINE SHOWN RE

THE MEA

THIS MAP COMPLIE

FOR SALE BY U.S. GEOLOGICAL SUR

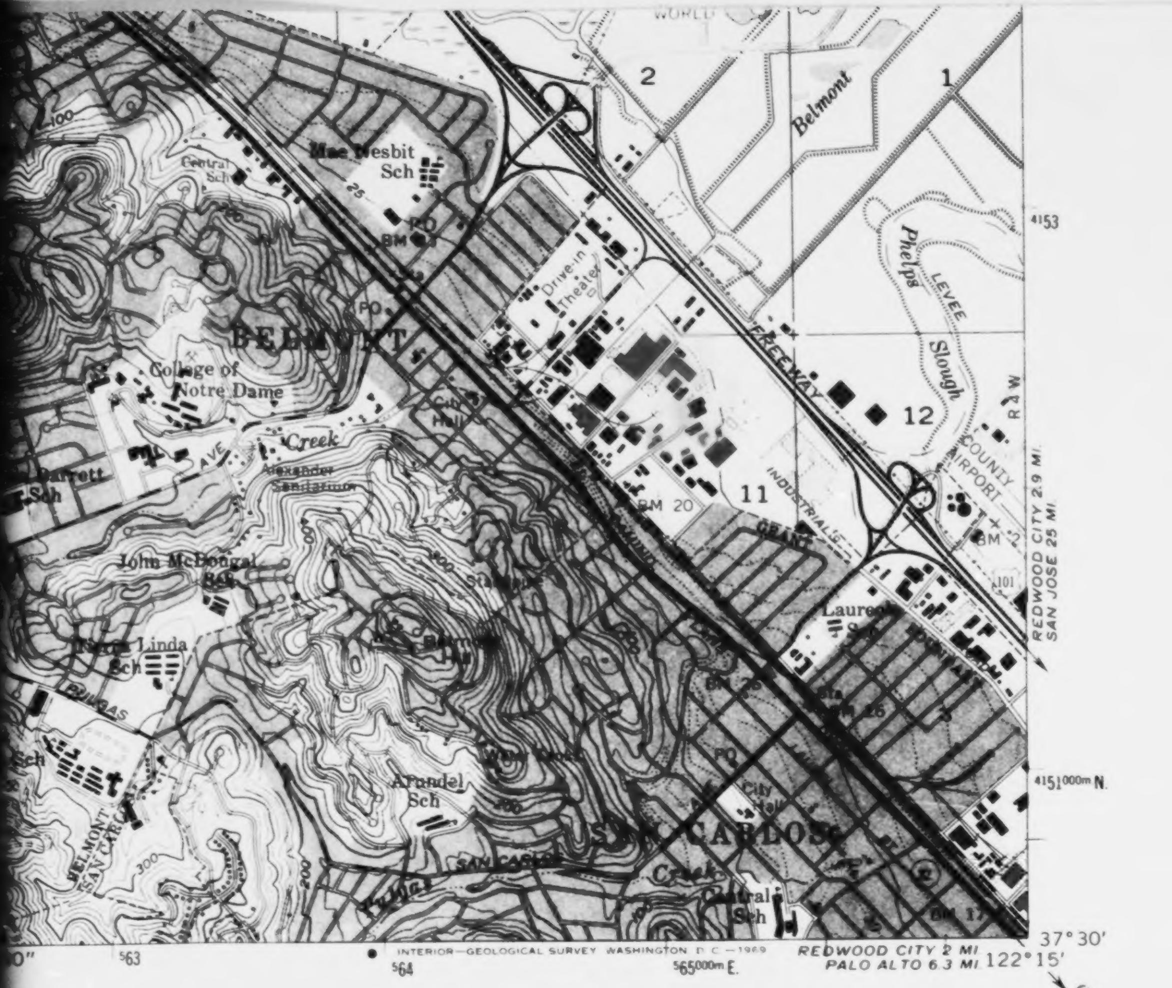
A FOLDER DESCRIBING TOPOG


Buena Vista School
Knolls Sch
Belle Monte
Cipriani Sch
Louis Barrett Sch
Ralston Sch
Reservoir
Carlmont High Sch
County Fire Sta
Hillcrest Detention Home
Relief Home
El Portal de Sol Sch
BM 376
BM 612
R I D G E
R E F U G E
Rift Zone
Crystal Springs Reservoir
BOUNDARY
RALSTON
AVE
CANADA ROAD
BELMONT CITY
Water Tanks
558
20'
559
WOODSIDE 6.7 MI.
560
(WOODSIDE)
1558 IV NE
561
562
17'30"
563
SCALE 1:24000
1 MILE
7000 FEET
1 KILOMETER
GN
MN
0°25'
7 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 25 FEET
DASHED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 6 FEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D.C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



Belmont
Phelps
LEVEE
Slough
FREEWAY
COUNTY AIRPORT
R R W
INDUSTRIAL
Drive-in Theater
Mae Nesbit Sch
Central Sch
BELMONT
College of Notre Dame
City Hall
Creek
Barrett Sch
John McDougal Sch
Laurel Sch
Arundel Sch
SAN CARLOS
Central Sch
Creek
BM 20
BM 17
101
1
2
11
12
4153
4151000m N.
REDWOOD CITY 2.9 MI.
SAN JOSE 25 MI.
563
564
565000m E.
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D C—1969
REDWOOD CITY 2 MI
PALO ALTO 6.3 MI
37° 30′
122° 15′
(PALO ALTO)
1558 I NW

ROAD CLASSIFICATION

Heavy-duty ▬▬▬ Light-duty ═══

Medium-duty ▬▬▬ Unimproved dirt ========

Interstate Route U. S. Route State Route

QUADRANGLE LOCATION

SAN MATEO, CALIF
SE/4 SAN MATEO 15' QUADRANGLE
N3730—W12215/7.5

1956
PHOTOINSPECTED 1968
AMS 1559 III SE—SERIES V895

11<

"July Night" - This discharge was warm during this flight. This is shown in Figure 43. The two above mentioned clarifiers were quite warm and can be easily seen in the thermal map.

C-41 April - The water flowing from Seal Slough into the Bay was dark brown in color.

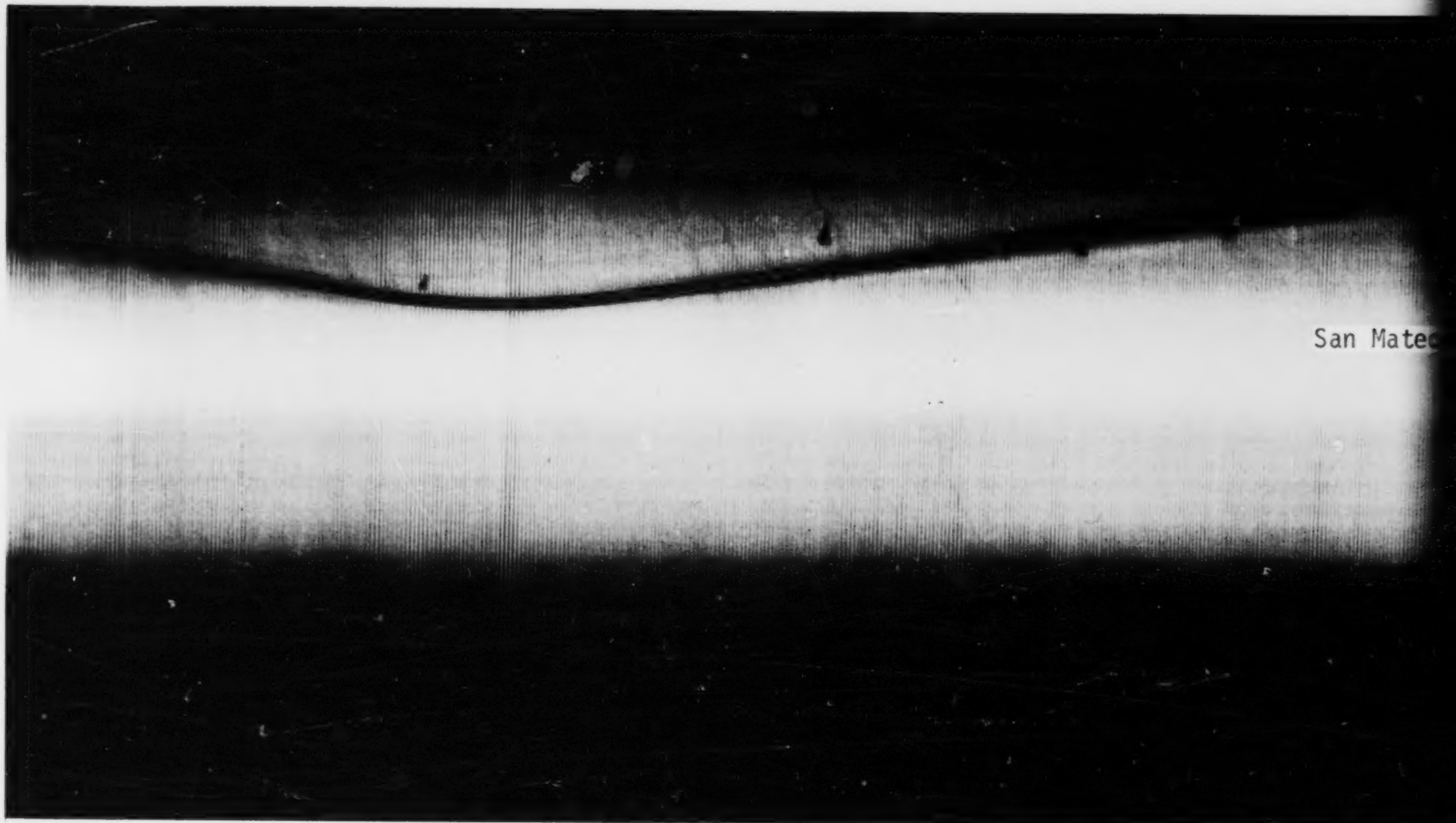
July - The thermal imagery indicated that the outflow from the Slough was cooler than the ambient surface temperature of the Bay waters.

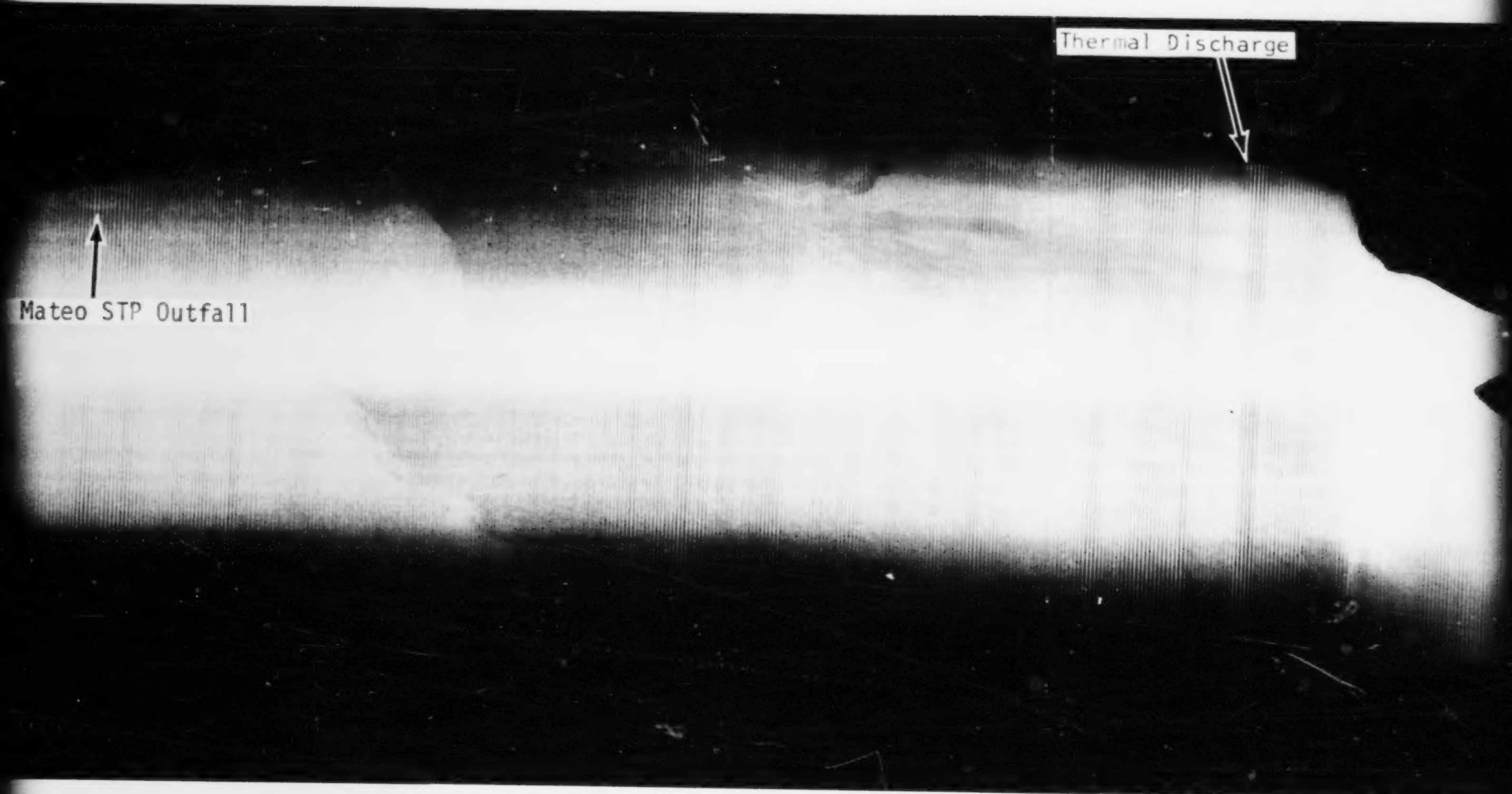
"July Night" - The water level in this area was low at the time of flight. The mud flats were recorded as being cooler than the ambient surface temperature of the Bay waters, as shown in Figure 43.

C-42 "July Night" - The San Mateo STP was located at the position marked C-42 in Figure 41. The STP discharge was located at the point labeled C-42b adjacent to the San Mateo Bridge. The temperature of the discharge water was slightly cooler than that of the ambient surface temperature of the receiving water. This is shown in Figure 43.

C-43 July - A green-brown substance formed a plume as sketched in Figure 41. The substance appeared to originate from a pipe on the southern bank whose position is also shown.

C-44 July - A small pipe was found at this particular location. It was not discharging at the time of flight. A pond-type area was present at a point immediately north of the indicated pipe.


San Mate


Thermal Discharge
Mateo STP Outfall

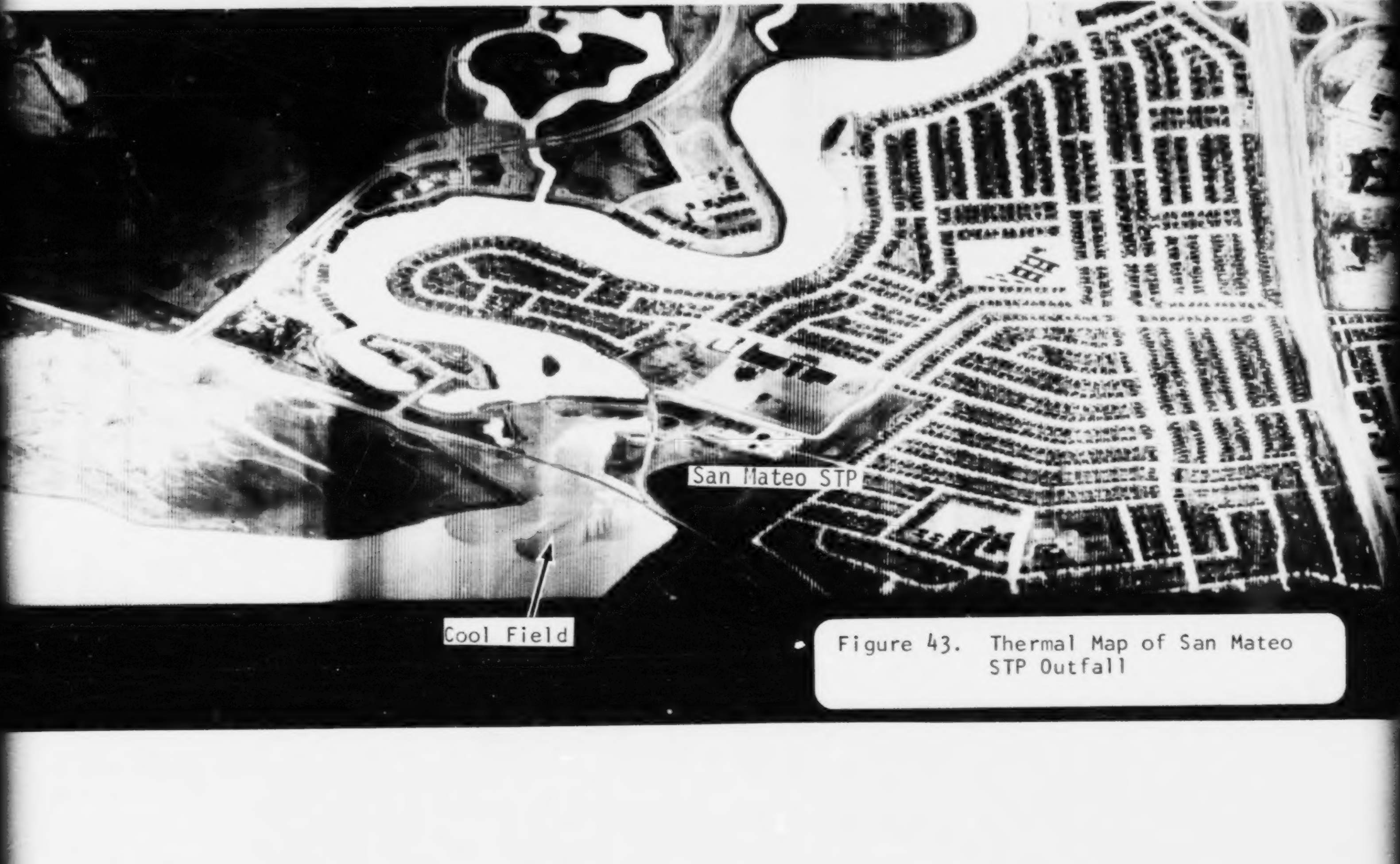

San Mateo STP
Cool Field

Figure 43. Thermal Map of San Mateo STP Outfall

C-45	July -	A small ditch entered the creek at this location. There was a pond beneath the power lines as shown in Figure 41.
C-46	July -	This creek or ditch had a moderate outflow consisting of a yellow-brown water.
C-47	April -	There are three outfalls located in this area. Each outfall consists of two pipes that start at a small building located behind a road. The pipes penetrate the road bed providing a discharge (or intake) point into the Bay. The outfalls were not active at the time of flight.
	July -	No discharge apparent at the time of flight. The imagery indicated that the ground in the immediate area where the pipes go through the road bed, was recently disturbed. There was a ditch present along the west side of the roadway, that extended from a point just north of the creek (C-46) to the golf course.
C-48	April -	Another basin (enclosed) has been added to Coyote Point Yacht Harbor, as shown in Figure 41. A submerged pipe penetrated the southern embankment of this basin. No apparent discoloration in the Bay waters was recorded.
	July -	Same indication.
C-49	July -	The enclosed basin contained a yellow-gray sludge-type material at the time of flight. It was passing into the Bay water at this point.

C-50 July - The Burlingame STP submerged outfall was discharging at the time of flight. There was no subsequent discoloration in the receiving water. The effluent was somewhat cooler than the immediate receiving waters.

C-51 April - These two ditches were discharging a red-brown water into the Bay.

C-52 April - A red-brown water was entering the Bay from Mills Creek.

July - Same indication.

C-53 July - A small facility, adjacent to the freeway, was discharging an orange-brown (rustic) wastewater into the Bay through a small canal, as shown in Figure 41.

NOTE: Indication numbers C-54 through C-56 appear on Figure 44, the Montara map.

C-54 April - The discharge from the Millbrae STP was positioned at this location. It was dark brown at the time of flight.

July - Same indication.

C-55 April - The outflow from this ditch was dark brown.

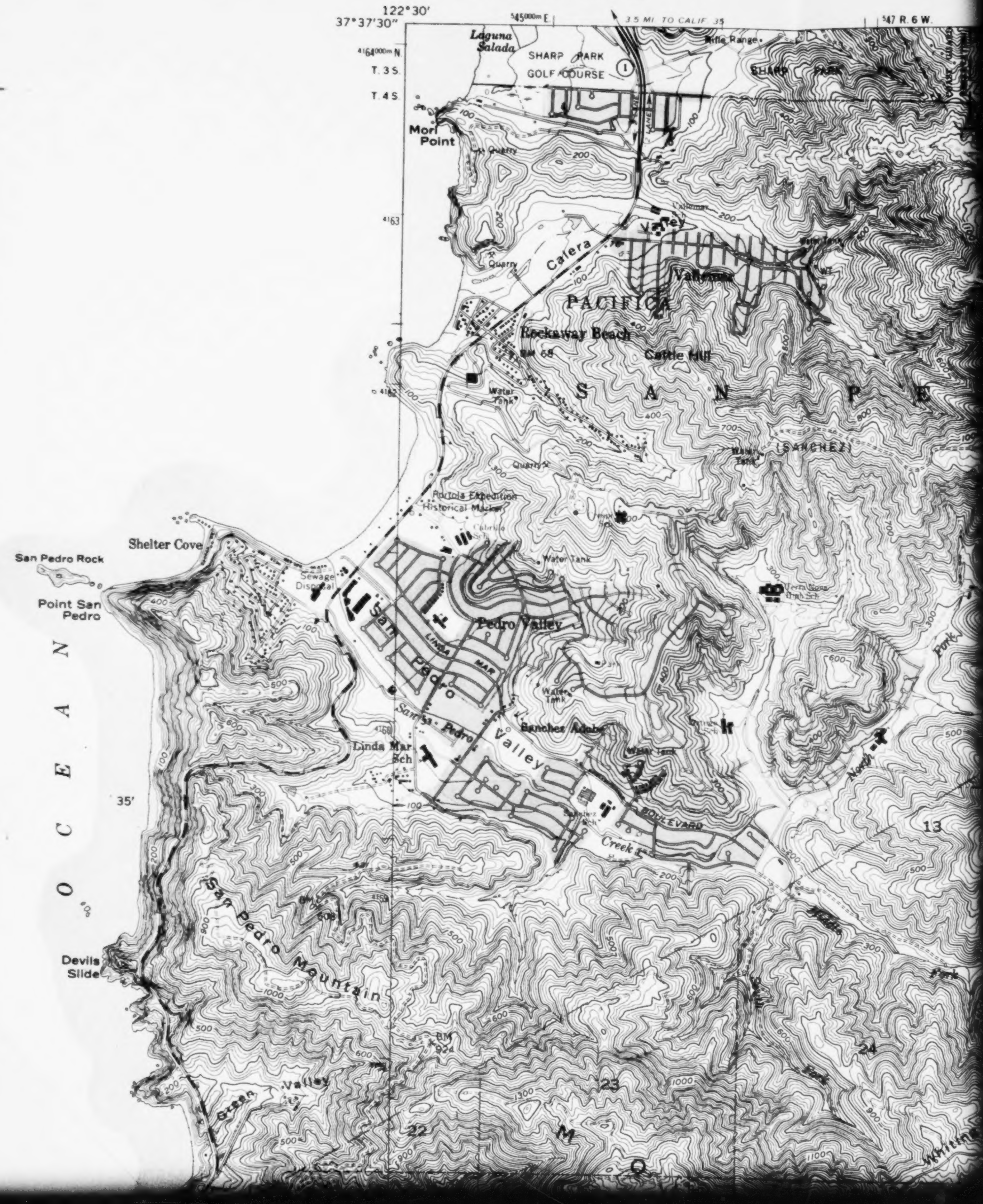
July - Same indication.

C-56 July - This point appeared to be a small discharge. No discoloration of the Bay water in this immediate area was recorded.

NOTE: Indication number C-57 appears on Figure 45, the Hunters Point map.

C-57 April - A surface level discharge was located at this point. It was not active at the time of flight.

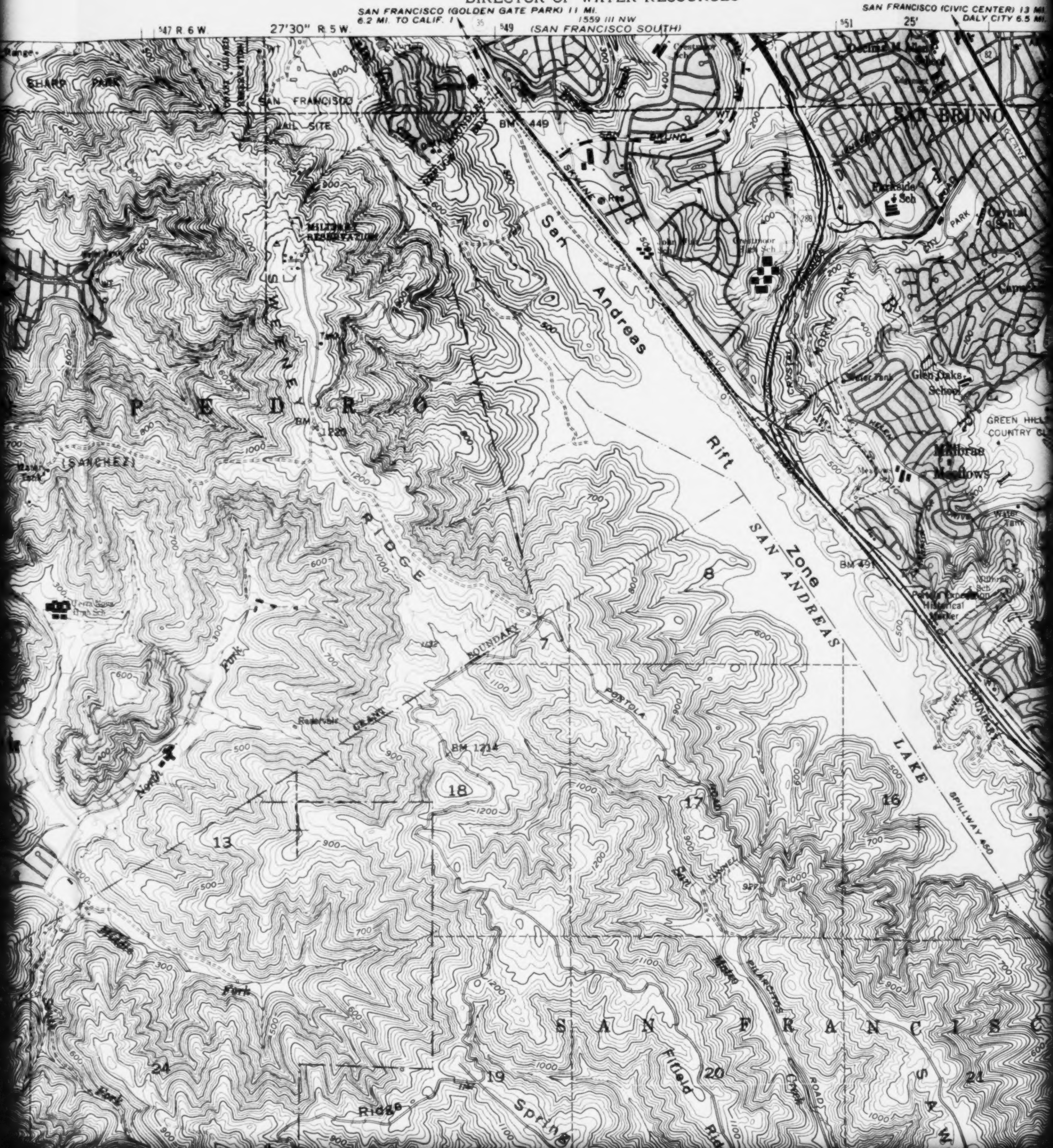
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



122°30'
37°37'30"
545000m E.
3.5 MI. TO CALIF. 35
547 R. 6 W.
4164000m N.
T. 3 S.
T. 4 S.
Laguna Salada
SHARP PARK GOLF COURSE
Rifle Range
SHARP PARK
Mori Point
Quarry
4163
Calera
Valley
Vallemar
Water Tank
PACIFICA
Rockaway Beach
BM 68
Cattle Hill
4162
Water Tank
S A N P E
(SANCHEZ)
Quarry
Portola Expedition Historical Marker
Shelter Cove
San Pedro Rock
Point San Pedro
Sewage Disposal
San Pedro
Pedro Valley
LINDA MAR
Terra Nova High Sch
Water Tank
Sanchez Adobe
4160
Linda Mar Sch
San Pedro Valley
Water Tank
BOULEVARD
Creek
O C E A N
35'
13
San Pedro Mountain
Devils Slide
BM 924
Green Valley
22
23
24
M O
Fork
North
Whitting

64-a

STATE OF CALIFORNIA
DIRECTOR OF WATER RESOURCES


SAN FRANCISCO (GOLDEN GATE PARK) 11 MI.
6.2 MI. TO CALIF. 1
1559 III NW
(SAN FRANCISCO SOUTH)
SAN FRANCISCO (CIVIC CENTER) 13 MI.
DALY CITY 6.5 MI.
547 R. 6 W.
27'30" R. 5 W.
549
551
25'
SHARP PARK
SAN FRANCISCO
JAIL SITE
BM 449
SKYLINE
MILITARY RESERVATION
SAN BRUNO
Decima M. Allen School
Parkside Sch
Crystal Sch
San Andreas Rift Zone
SAN ANDREAS LAKE
SPILLWAY 450
Glen Oaks School
GREEN HILLS COUNTRY CLUB
Millbrae Meadows
Water Tank
BM 491
Portola Expedition Historical Marker
P E D R O
SWEENEY RIDGE
BM 1220
(SANCHEZ)
BOUNDARY
GRANT
PORTOLA
ROAD
BM 1214
Reservoir
North Fork
Middle Fork
Fork
TUNNEL
927
FIFIELD
Fifield Ridge
Spring Ridge
Ridge
SAN FRANCISCO
S A W
8
7
13
16
17
18
19
20
21
24

64-a

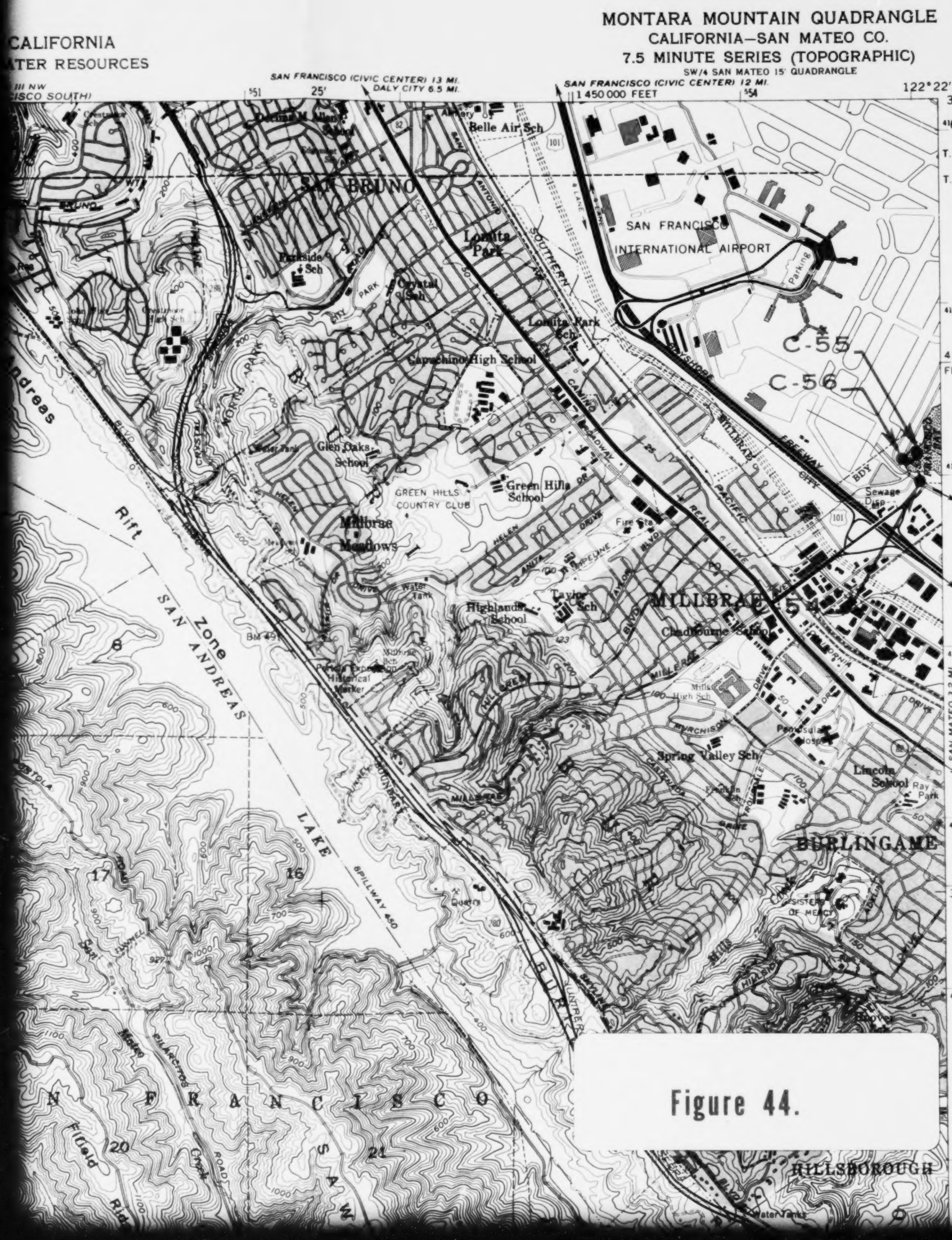
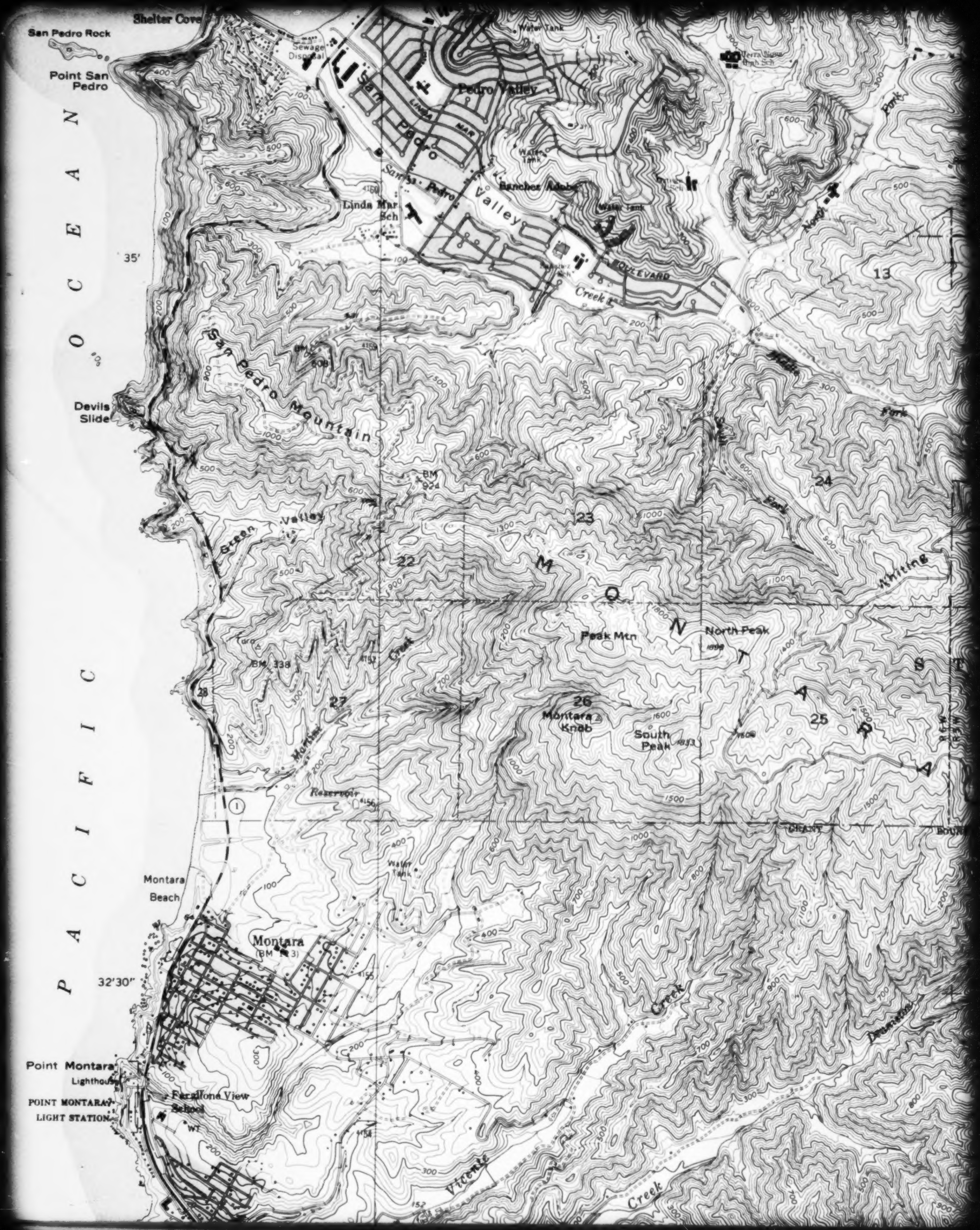
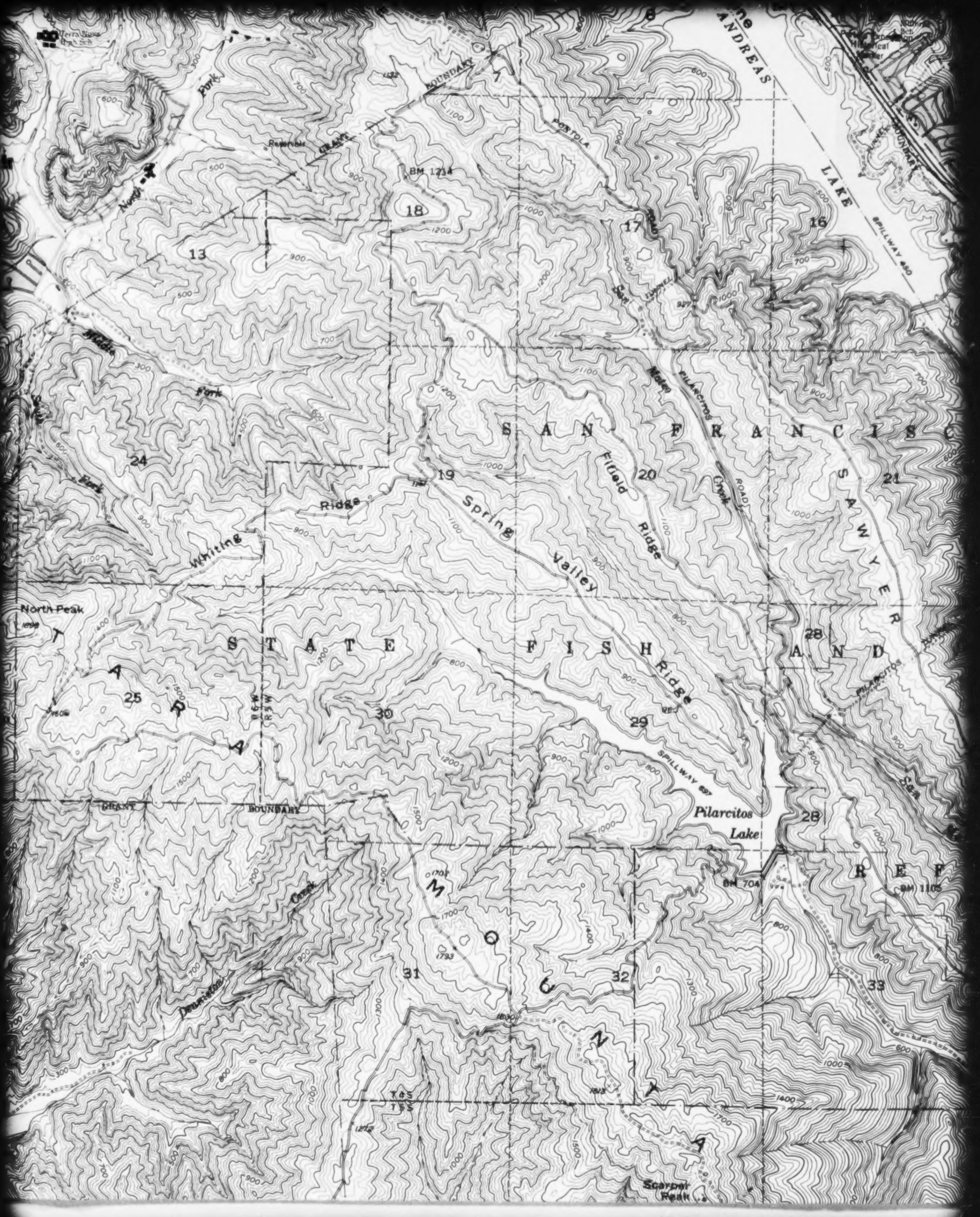

MONTARA MOUNTAIN QUADRANGLE
CALIFORNIA–SAN MATEO CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 SAN MATEO 15' QUADRANGLE
CALIFORNIA
ATER RESOURCES
1559 III NE (HUNTERS POINT)
SAN FRANCISCO (CIVIC CENTER) 13 MI.
DALY CITY 6.5 MI.
SAN FRANCISCO (CIVIC CENTER) 12 MI.
1 450 000 FEET
122°22'30"
37°37'30"
410 000 FEET
T. 3 S.
T. 4 S.
SAN BRUNO
SAN FRANCISCO INTERNATIONAL AIRPORT
Parking
Lomita Park
Belle Air Sch
Parkside Sch
Crystal Sch
Capuchino High School
Lomita Park Sch
Glen Oaks School
GREEN HILLS COUNTRY CLUB
Green Hills School
Millbrae Meadows
Highlands School
Taylor Sch
MILLBRAE
Chadbourne School
Mills High Sch
Peninsula Hosp
Spring Valley Sch
Lincoln School
Ray Park
BURLINGAME
SISTERS OF MERCY
HILLSBOROUGH
Sewage Disp
C-55
C-56
San Andreas
Rift Zone
SAN ANDREAS LAKE
SPILLWAY 450
N FRANCISCO
Fifield Ridge
REDWOOD CITY 13 MI.
SAN JOSE 34 MI.
SAN MATEO 3.2 MI.
PALO ALTO 17 MI.
Water Tanks
Quarry
35'

Figure 44.


Shelter Cove
San Pedro Rock
Point San Pedro
Sewage Disposal
Water Tank
San Pedro Valley
San Pedro Creek
LINDA MAR
Terra Nova High Sch
Linda Mar Sch
Rancho Adobe
BOULEVARD
Creek
North Fork
Middle Fork
South Fork
13
P A C I F I C   O C E A N
35'
San Pedro Mountain
Devils Slide
BM 924
Green Valley
22
23
24
M O N T A R A
Peak Mtn
North Peak
1898
Whiting
BM 338
27
26
Montara Knob
South Peak
1833
25
Martini Creek
Reservoir
Water Tank
Montara Beach
Montara
(BM 113)
32'30"
Point Montara
Lighthouse
POINT MONTARA LIGHT STATION
Farallone View School
San Vicente Creek
Denniston
GRANT
1


ANDREAS
LAKE
SPILLWAY 450
BOUNDARY
GRANT
PORTOLA
ROAD
BM 1214
Reservoir
North Fork
Middle Fork
San Mateo Creek
TUNNEL
PILARCITOS ROAD
Pilarcitos Creek
S A N F R A N C I S C
S A W Y E R
Fifield Ridge
Spring Valley
Ridge
Whiting Ridge
North Peak
S T A T E F I S H A N D
R E F
Ridge
SPILLWAY 697
Pilarcitos Lake
BM 704
BM 1105
PILARCITOS
T A R A
GRANT BOUNDARY
Denniston Creek
M O U N T A
T6S
T7S
Scarper Peak
7
8
13
16
17
18
19
20
21
24
25
28
28
29
30
31
32
33
300
500
600
700
900
1000
1100
1200
1500
1700
1400
1300
1733
1707
1898
1606
1272
1813
1830

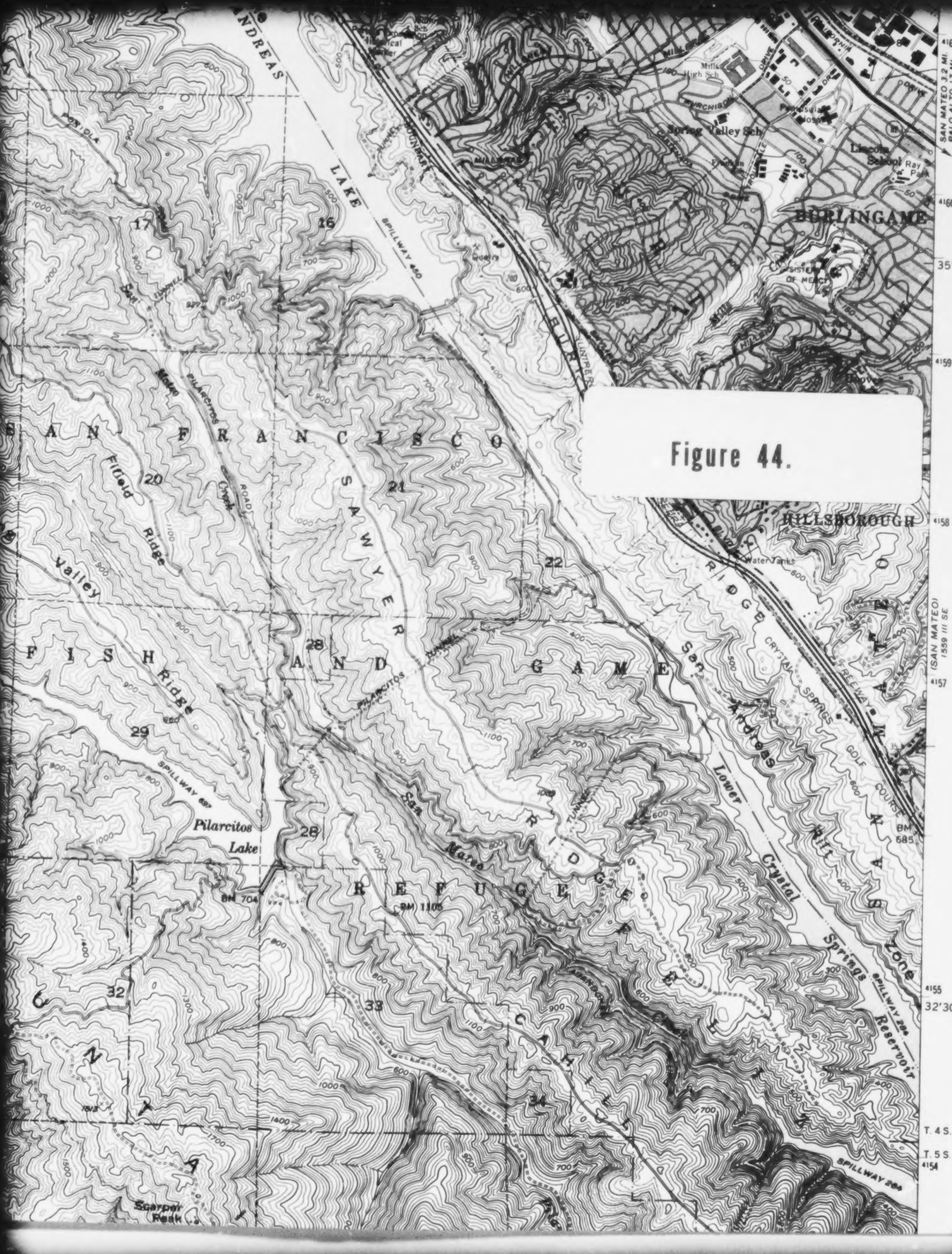
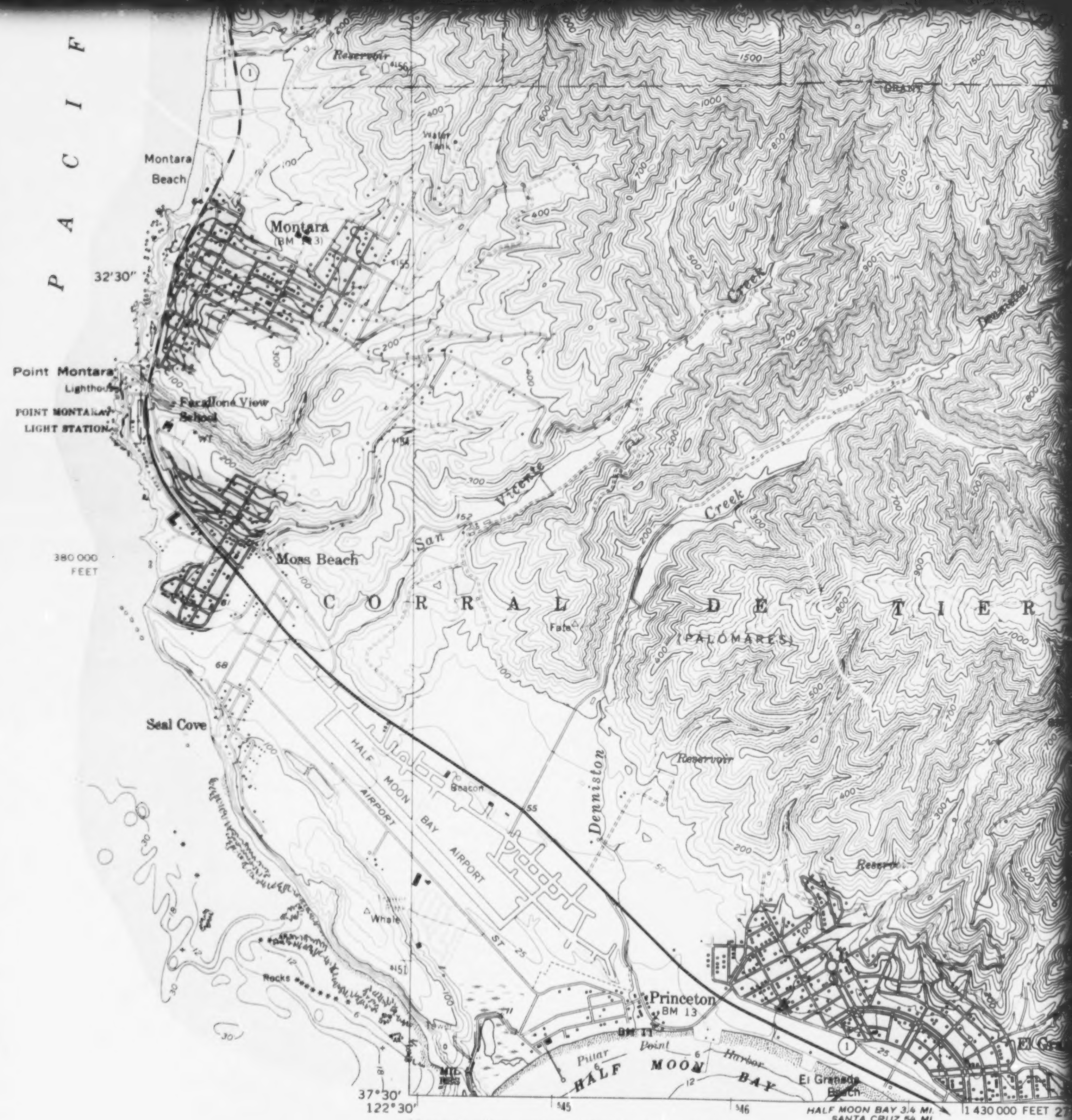

SAN ANDREAS
LAKE
SPILLWAY 460
Portola
Mills High Sch
Spring Valley Sch
Lincoln School
Ray Park
BURLINGAME
Sisters of Mercy
HILLSBOROUGH
Water Tanks
SAN FRANCISCO
SAWYER
RIDGE
FISH AND GAME REFUGE
Fifield Ridge
Pilarcitos Creek
Valley
Ridge
Pilarcitos Tunnel
Pilarcitos Lake
SPILLWAY 697
San Mateo
RIDGE
CAHILL
San Andreas Rift Zone
Lower Crystal Springs Reservoir
CRYSTAL SPRINGS GOLF COURSE
FREEWAY
SPILLWAY 286
BM 704
BM 1105
BM 685
Scarper Peak
SAN MATEO 3.2 MI.
PALO ALTO 17 MI.
(SAN MATEO) 1559 III SE
4161
4160
35'
4159
4158
4157
4155
32'30"
4154
T. 4 S.
T. 5 S.
16
17
20
21
22
28
29
32
33
34

Figure 44.


P A C I F
Reservoir
Water Tank
GRANT
Montara Beach
Montara
(BM 113)
32'30"
Point Montara
Lighthouse
POINT MONTARA LIGHT STATION
Farallone View School
San Vicente Creek
Creek
Denniston
380 000 FEET
Moss Beach
C O R R A L D E T I E R
(PALOMARES)
Fale
Seal Cove
HALF MOON BAY AIRPORT
Beacon
Dennison
Reservoir
Whale
Rocks
Princeton
BM 13
Pillar Point
Harbor
HALF MOON BAY
El Granada Beach
37°30'
122°30'
545
546
HALF MOON BAY 3.4 MI.
SANTA CRUZ 54 MI.
1 430 000 FEET

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

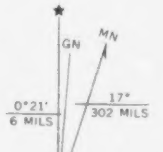
Topography from aerial photographs by multiplex methods
Culture and partial contour revision from
aerial photographs taken 1956. Field checked 1956

Hydrography compiled from USC&GS chart 5520 (1949)

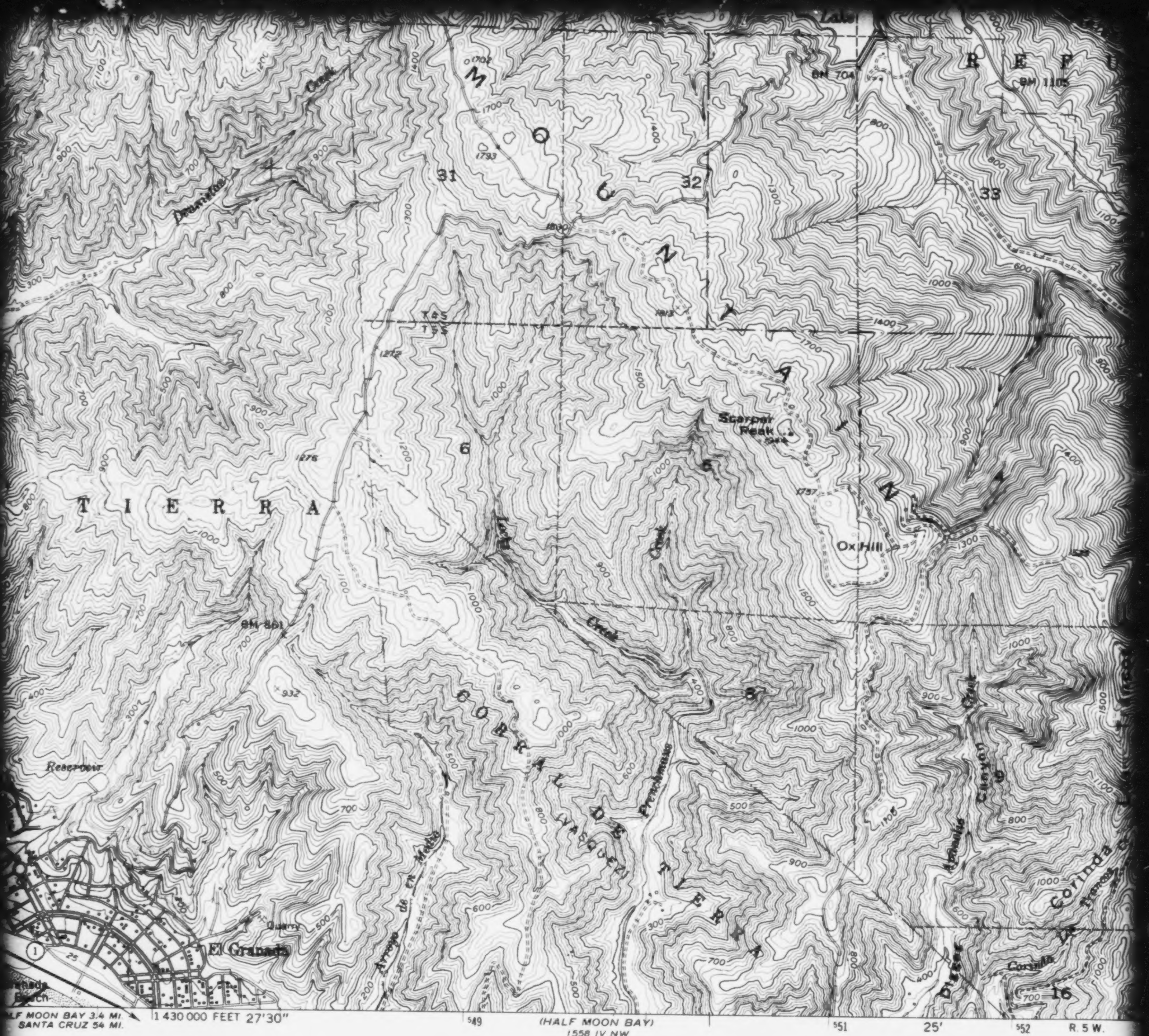
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks,
zone 10, shown in blue

Red tint indicates areas in which only landmark buildings are shown

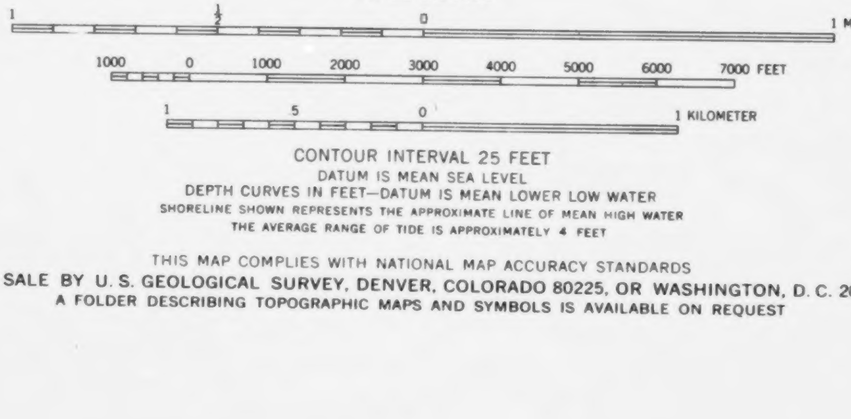
Where omitted, land lines have not been established

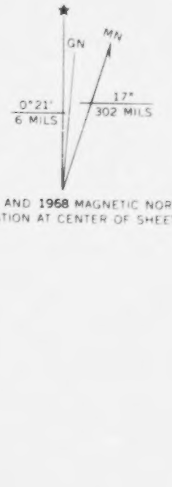

GN
MN
0°21'
6 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET


Lake
M O N T A I N
R E F U
T I E R R A
C O R R A L D E T I E R R A
(VASQUEZ)
31
32
33
6
5
8
9
16
T 4 S
T 5 S
Scarper Peak
Ox Hill
Denniston Creek
Creek
Arroyo de en Medio
Frenchmans Creek
Apanolio Canyon
Corinda Los Trancos
Deer Creek
Reservoir
Quarry
El Granada
BM 704
BM 1105
BM 851
1733
1272
1276
932
1700
1400
1300
1100
1000
900
800
700
600
500
400
300
200
1
HALF MOON BAY 3.4 MI.
SANTA CRUZ 54 MI.
1 430 000 FEET 27'30"
549
(HALF MOON BAY)
1558 IV NW
551
25'
552
R. 5 W.

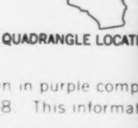
SCALE 1:24000


1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
5
0
1 KILOMETER


GN
MN
0°21'
6 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 25 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE AVERAGE RANGE OF TIDE IS APPROXIMATELY 4 FEET

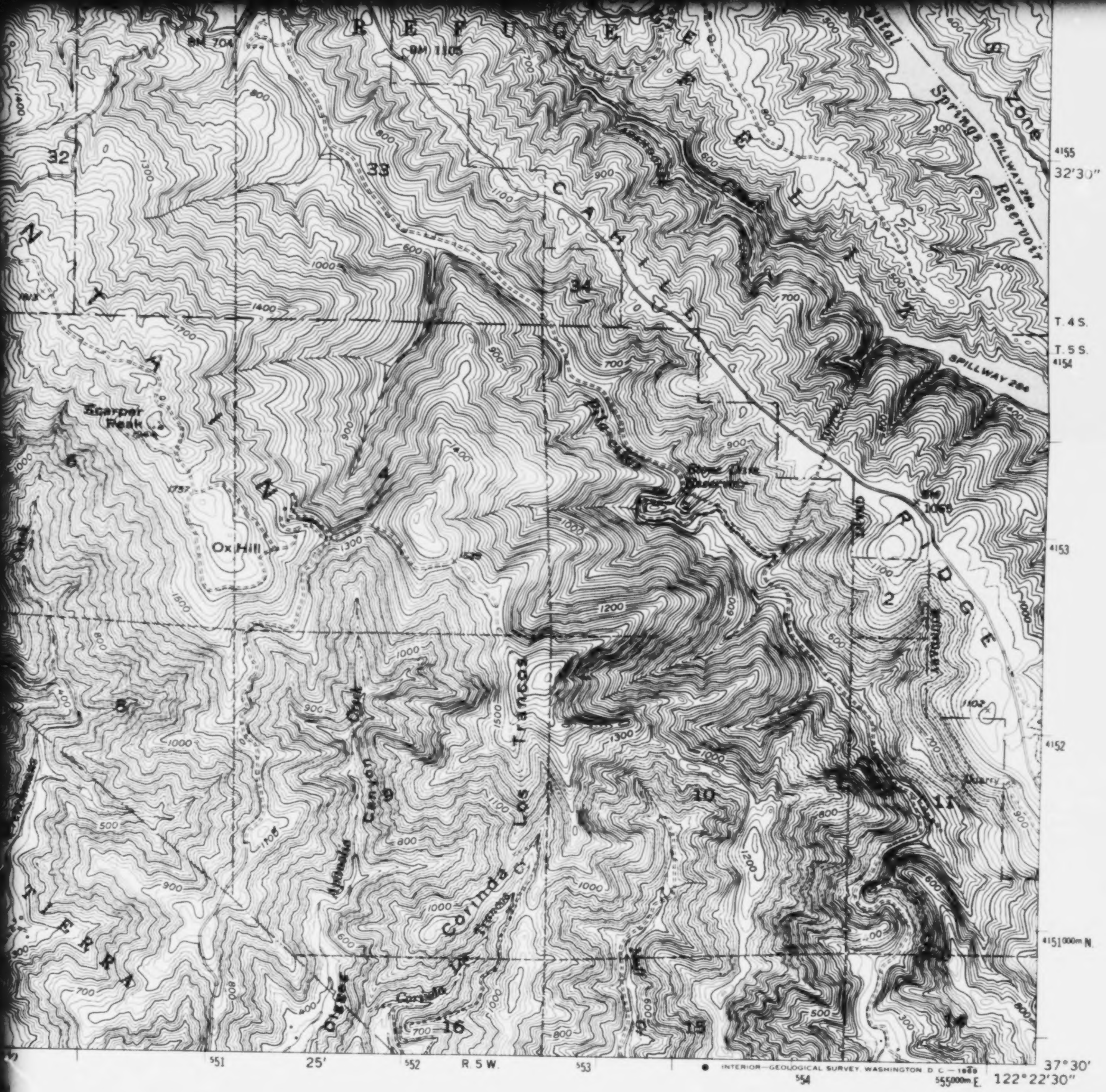


QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Data shown in purple compile
taken 1968. This information

Purple tint indicates extension


REFUGE
CAHILL RIDGE
Crystal Springs Reservoir
Zone
SPILLWAY 284
BM 704
BM 1105
32
33
34
2
5
6
9
10
11
14
15
16
Scarper Peak
1944
1737
Ox Hill
Pilarcitos
Stone Dam Reservoir
BM 1069
Quarry
Los Trancos
Corinda Los Trancos
Canyon
Diggs
TIERRA
T. 4 S.
T. 5 S.
4155
4154
4153
4152
4151000m N.
32'30"
551
25'
552
R. 5 W.
553
554
555000m E.
37°30'
122°22'30"
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1969

(WOODSIDE)
1558 IV NE

1 MILE

000 5000 6000 7000 FEET

1 KILOMETER

S FEET
EVEL
N LOWER LOW WATER
E LINE OF MEAN HIGH WATER
IMATELY 4 FEET

P ACCURACY STANDARDS
RADO 80225, OR WASHINGTON, D. C. 20242
MBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

Data shown in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban areas

ROAD CLASSIFICATION

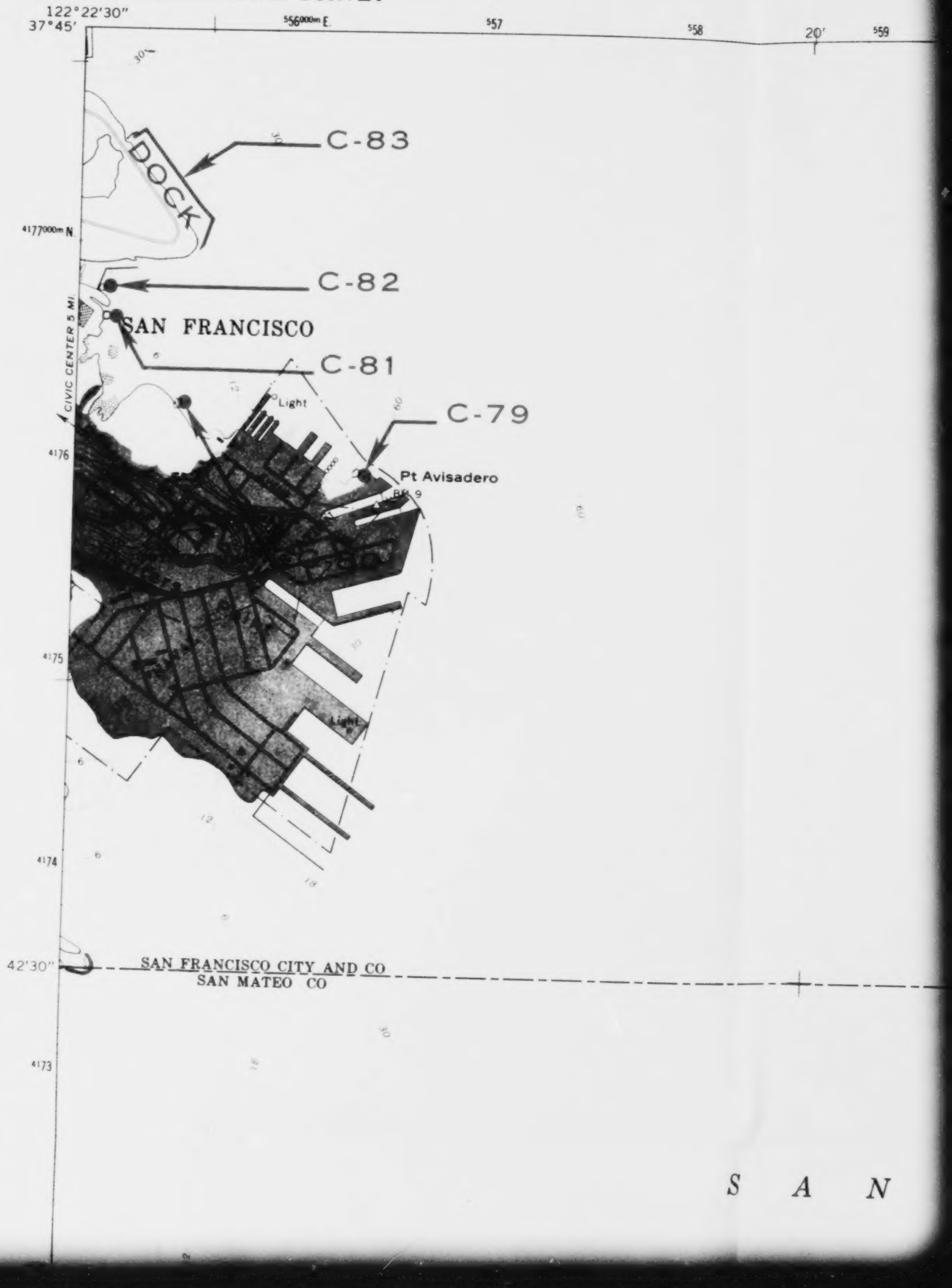
Heavy-duty ━━━━ Light-duty ════
Medium-duty ━━━━ Unimproved dirt ========

Interstate Route U. S. Route State Route

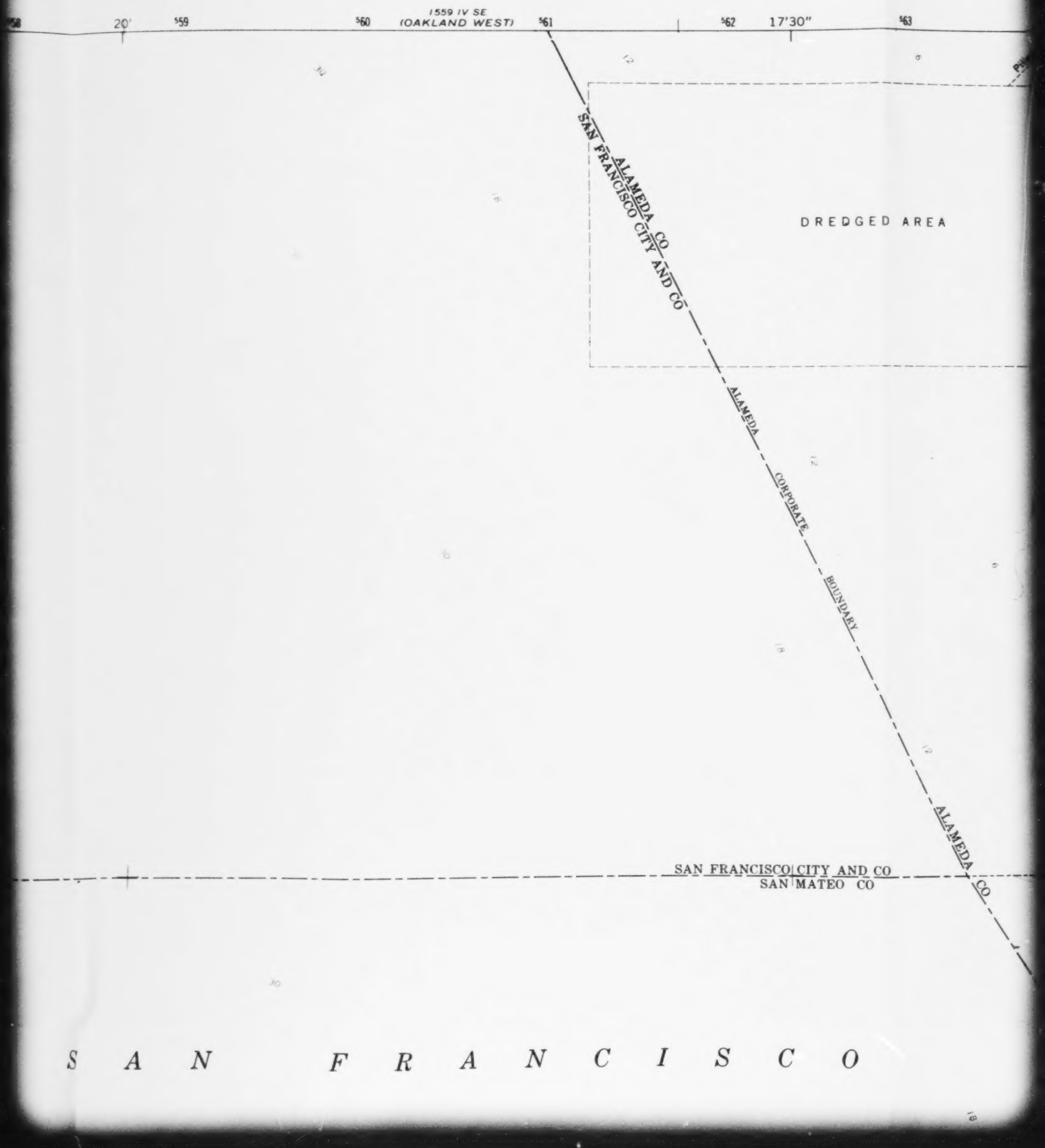
MONTARA MOUNTAIN, CALIF.
SW/4 SAN MATEO 15' QUADRANGLE
N3730—W12222.5/7.5

1956
PHOTOREVISED 1968
AMS 1559 III SW–SERIES V895

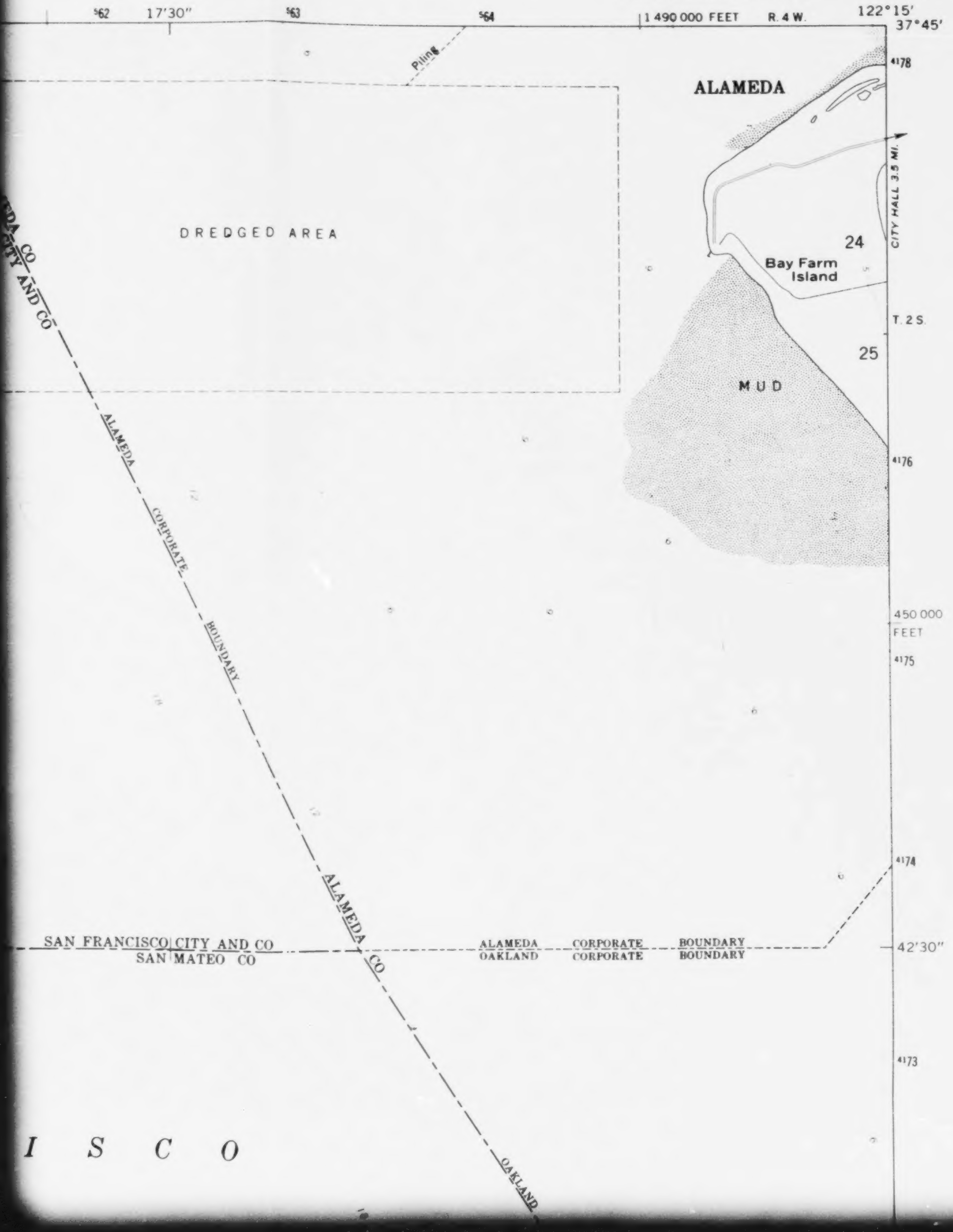
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

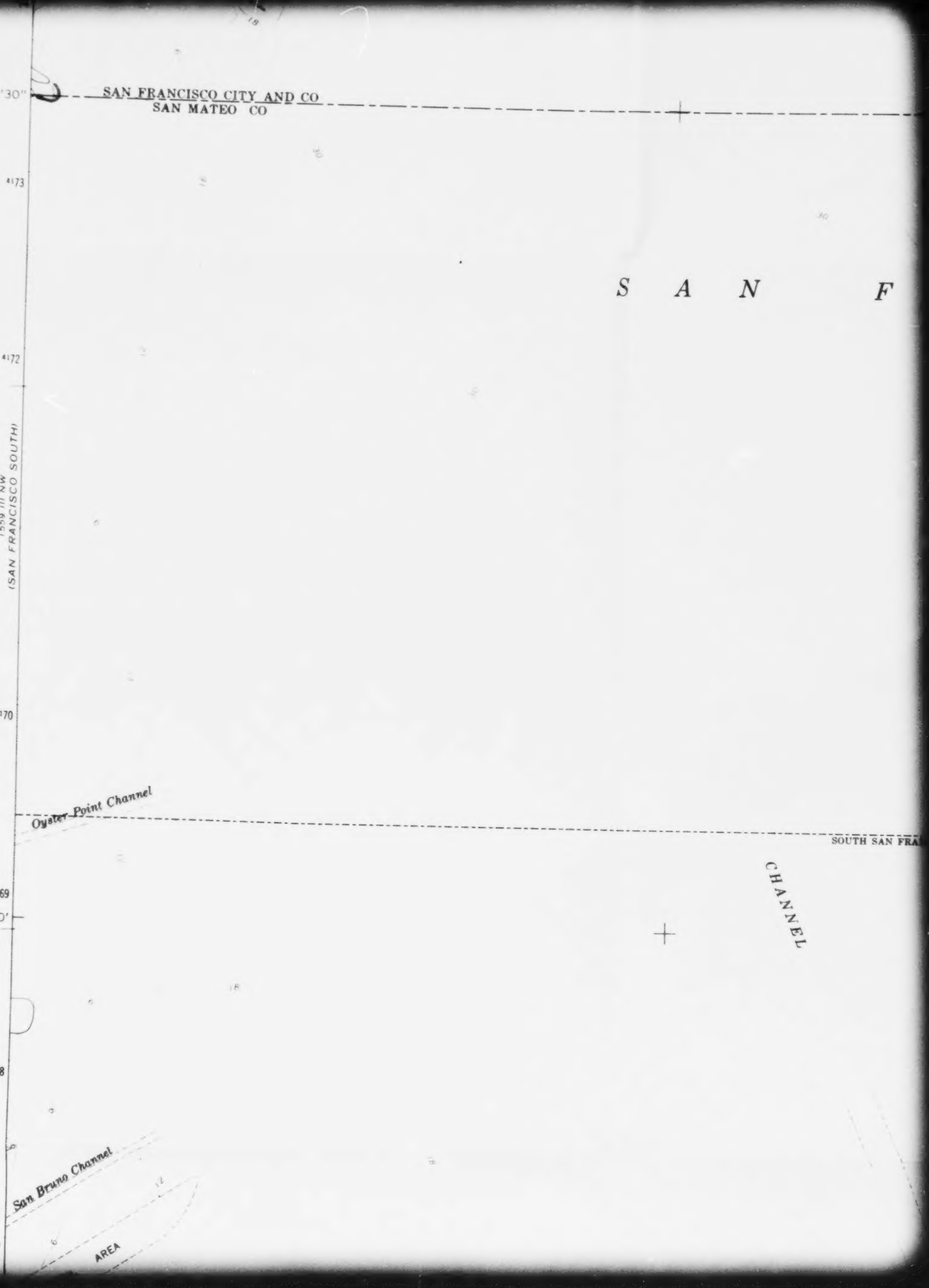

1559 IV SW
(SAN FRANCISCO NORTH)
122°22'30"
37°45'
556000m E.
557
558
20'
559
4177000m N.
4176
4175
4174
4173
42'30"
C-83
DOCK
C-82
SAN FRANCISCO
C-81
C-79
Light
Pt Avisadero
BM 9
Light
CIVIC CENTER 5 MI.
SAN FRANCISCO CITY AND CO
SAN MATEO CO
S A N

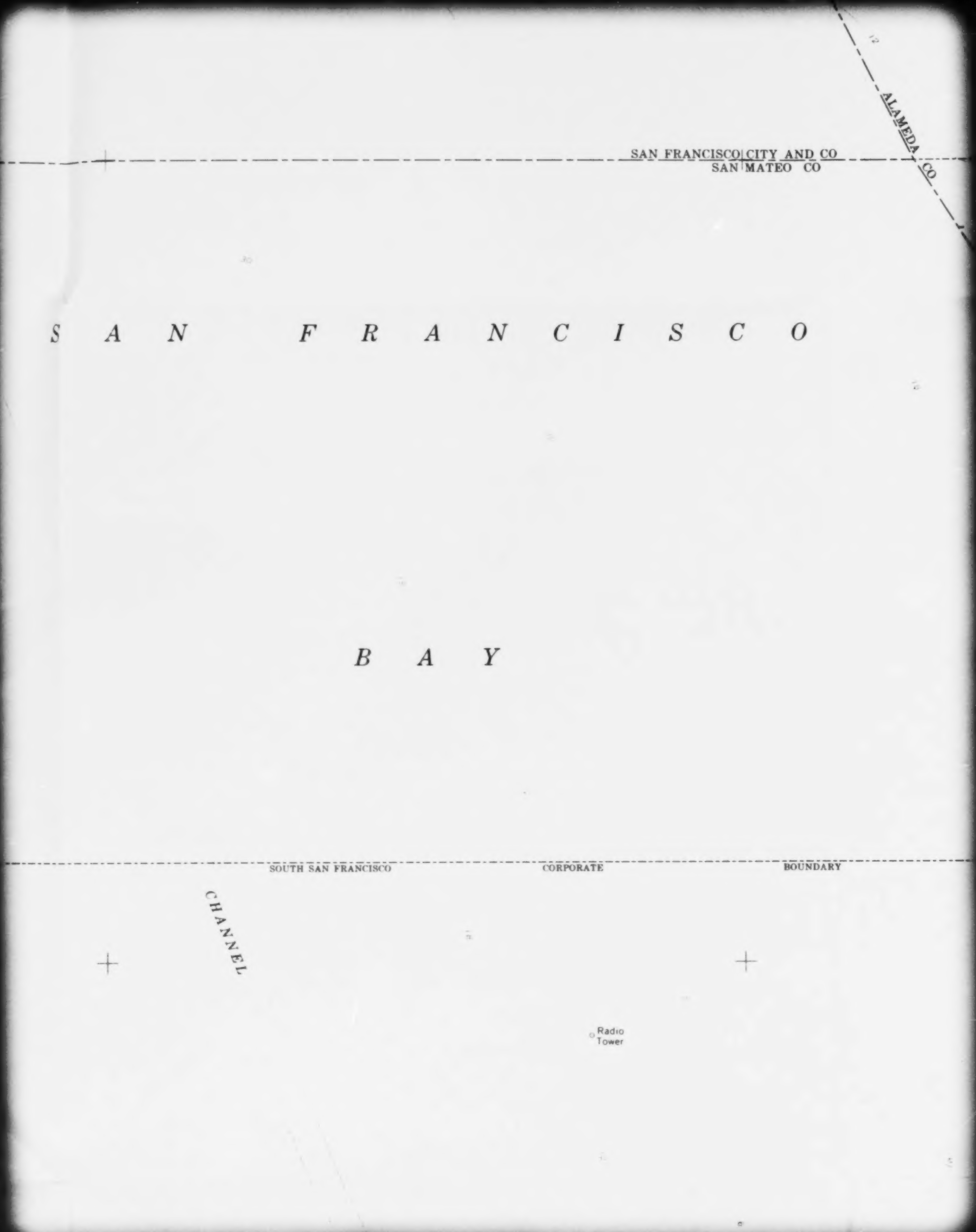
64-B

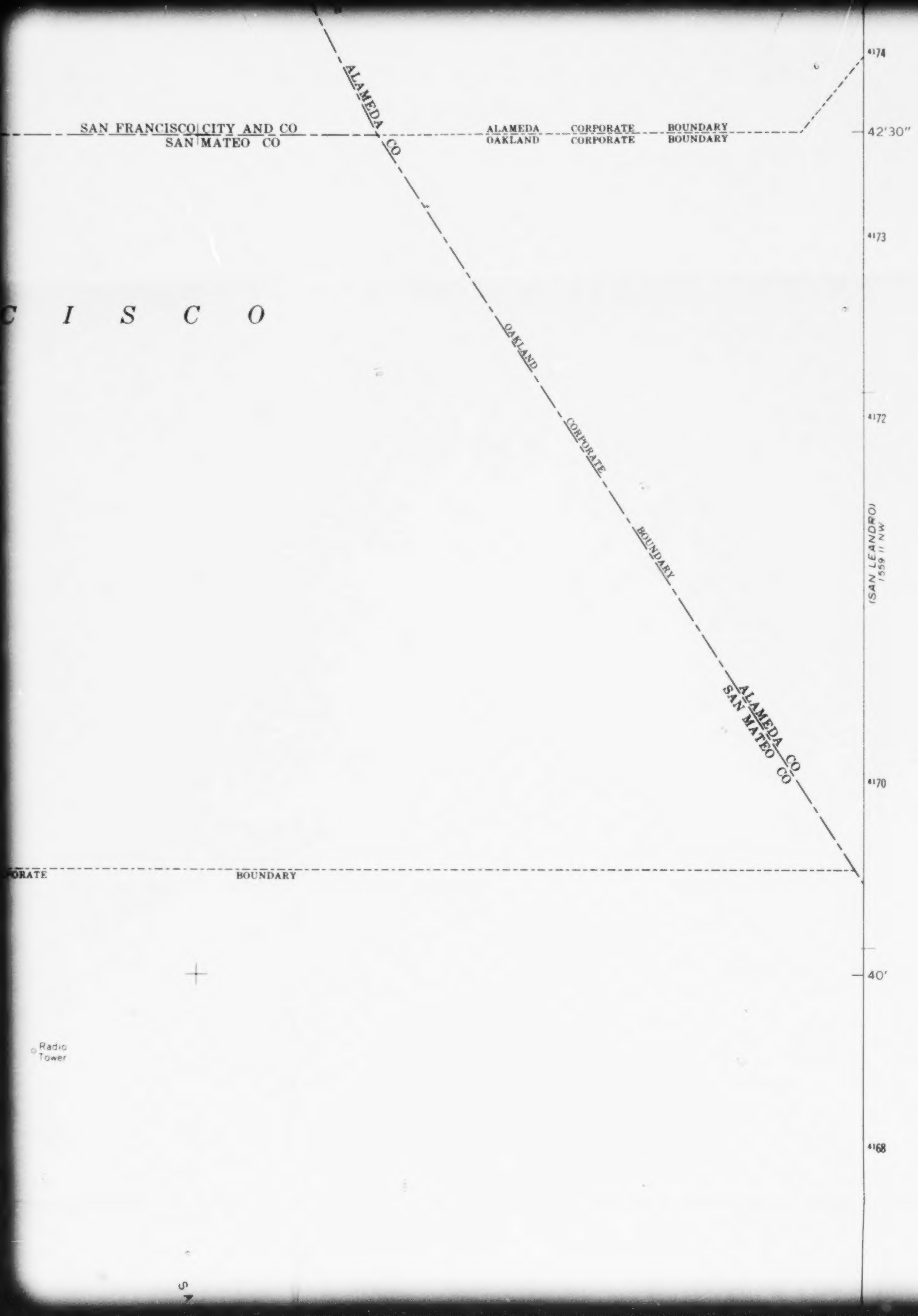

558
20'
559
560
1559 IV SE
(OAKLAND WEST)
561
562
17'30"
563
DREDGED AREA
ALAMEDA CO
SAN FRANCISCO CITY AND CO
ALAMEDA CORPORATE BOUNDARY
ALAMEDA CO
SAN FRANCISCO CITY AND CO
SAN MATEO CO
SAN FRANCISCO

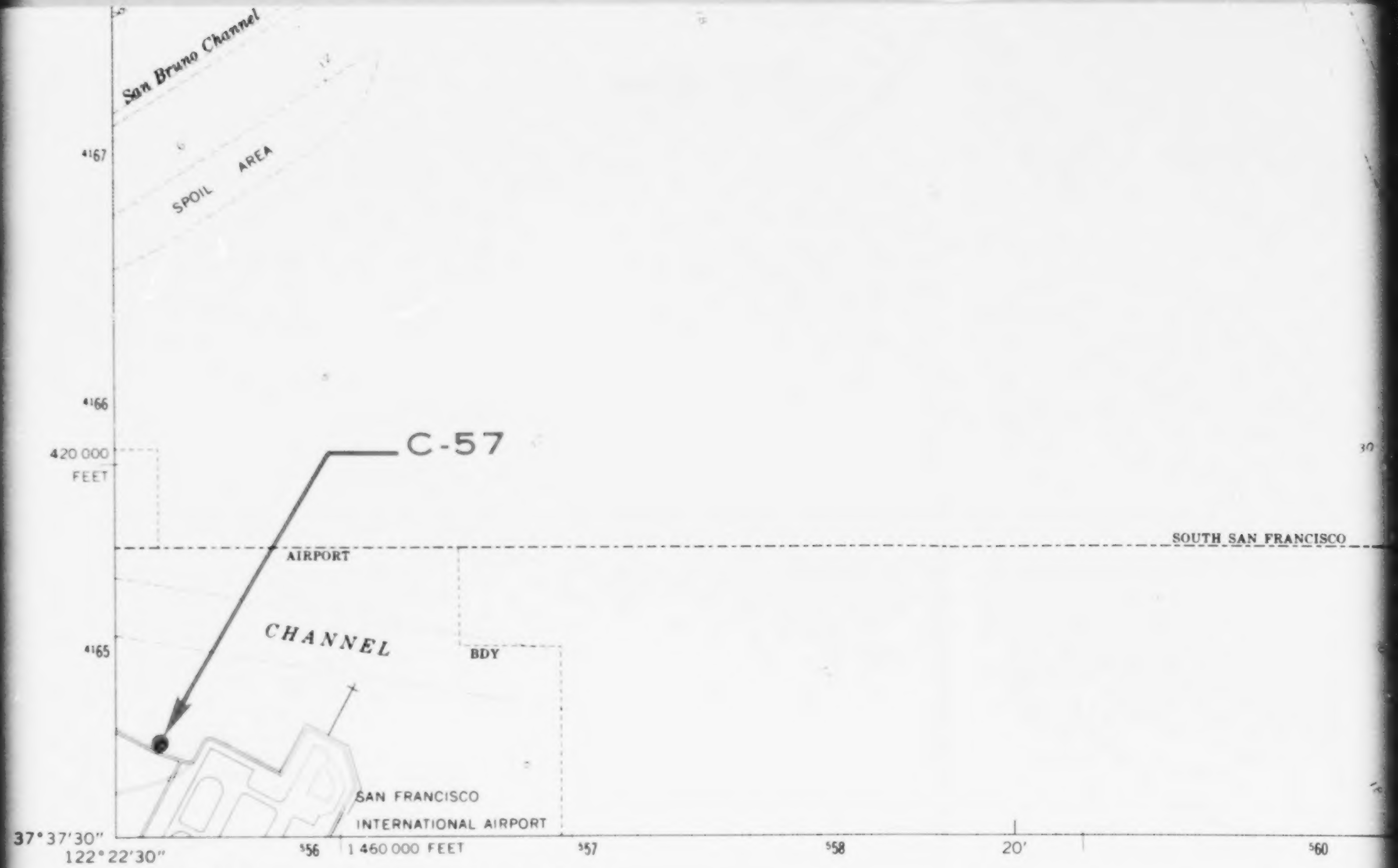
HUNTERS POINT QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 SAN MATEO 15' QUADRANGLE


1559 I SW
(OAKLAND EAST)
562
17'30"
563
564
1 490 000 FEET
R. 4 W.
122°15'
37°45'
4178
Piling
ALAMEDA
DREDGED AREA
CITY HALL 3.5 MI.
24
Bay Farm Island
T. 2 S.
25
MUD
4176
DA CO
CITY AND CO
ALAMEDA
CORPORATE
BOUNDARY
450 000 FEET
4175
4174
ALAMEDA
SAN FRANCISCO CITY AND CO
SAN MATEO CO
CO
ALAMEDA CORPORATE BOUNDARY
OAKLAND CORPORATE BOUNDARY
42'30"
4173
I S C O
OAKLAND


42'30"
SAN FRANCISCO CITY AND CO
SAN MATEO CO
4173
4172
1559 III NW
(SAN FRANCISCO SOUTH)
S A N F
4170
Oyster Point Channel
SOUTH SAN FRA
CHANNEL
4169
40'
18
4168
San Bruno Channel
18
4167
AREA


SAN FRANCISCO CITY AND CO
SAN MATEO CO
ALAMEDA CO
SAN FRANCISCO
BAY
SOUTH SAN FRANCISCO CORPORATE BOUNDARY
CHANNEL
Radio Tower


SAN FRANCISCO CITY AND CO
SAN MATEO CO
ALAMEDA CO
ALAMEDA CORPORATE BOUNDARY
OAKLAND CORPORATE BOUNDARY
4174
42'30"
4173
CISCO
OAKLAND CORPORATE BOUNDARY
4172
(SAN LEANDRO)
1559 II NW
ALAMEDA CO
SAN MATEO CO
4170
ORATE BOUNDARY
40'
Radio Tower
4168
SA


San Bruno Channel
SPOIL AREA
C-57
AIRPORT
SOUTH SAN FRANCISCO
CHANNEL
BDY
SAN FRANCISCO
INTERNATIONAL AIRPORT
4167
4166
4165
420 000
FEET
30
37°37'30"
122°22'30"
556
1 460 000 FEET
557
558
20'
560
MOUNTAIN
SW

Mapped, edited, and published by the Geological Survey
in cooperation with California Department of Water Resources

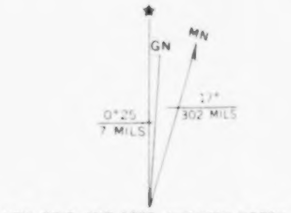
Control by USGS, USC&GS and USCE

Topography by photogrammetric methods from aerial photographs taken 1946. Culture and partial contour revision from aerial photographs taken 1956. Field checked 1956

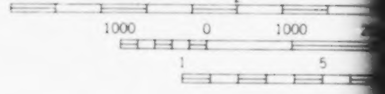
Selected hydrographic data compiled in 1967 from USC&GS Charts 5531 (1956-65) and 5535 (1956-66)
This information is not intended for navigational purposes

Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

Red tint indicates areas in which only landmark buildings are shown

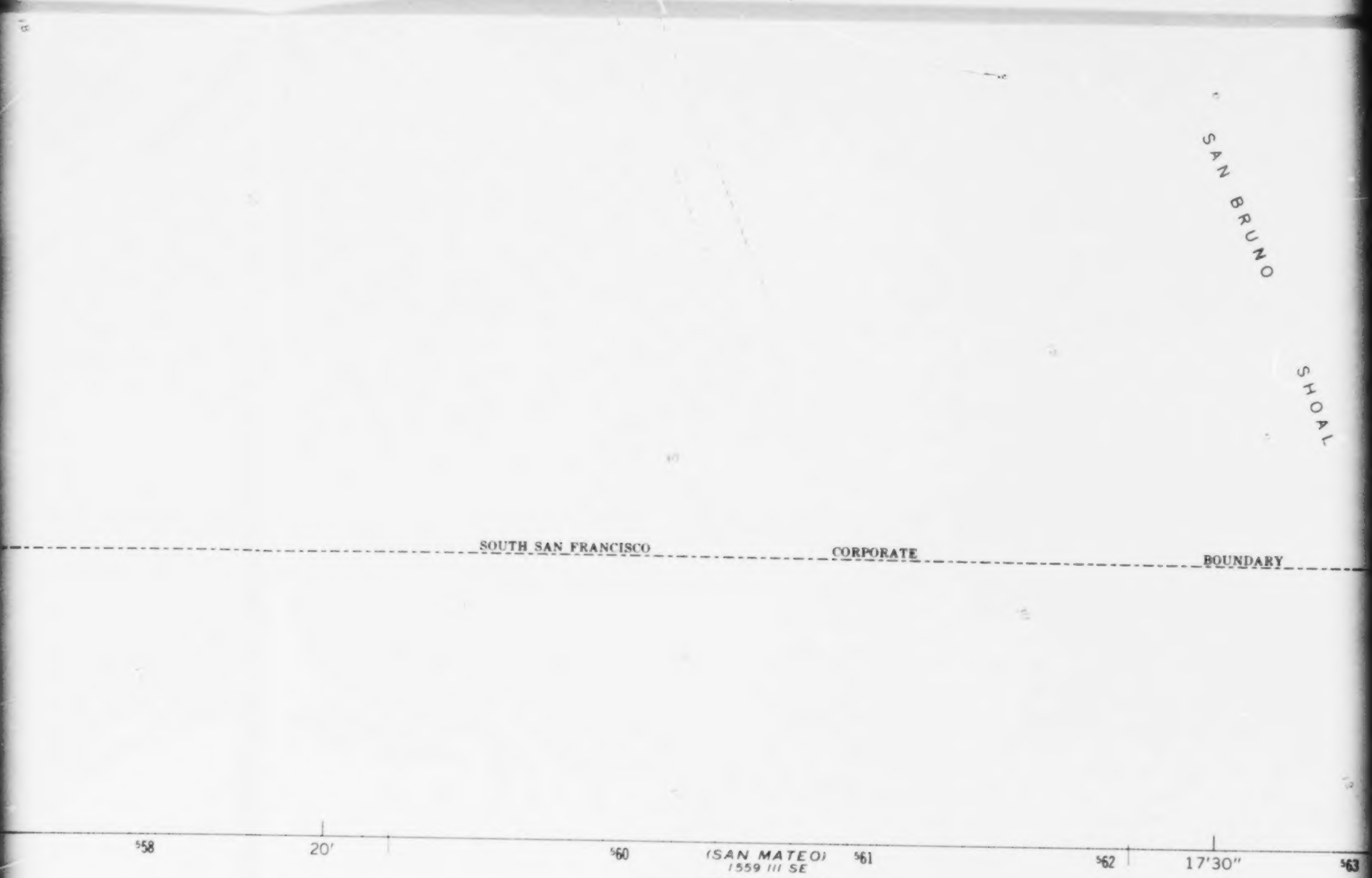

GN
MN
0°25'
7 MILS
17°
302 MILS

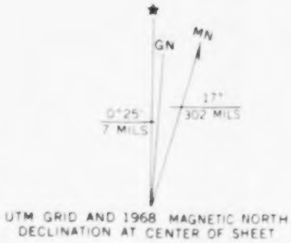
UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET


1
½
1000
0
1000
1
5

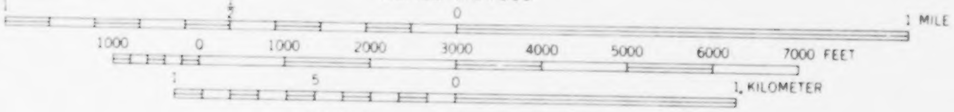
CONTO
DOTTED LINE
DATU
DEPTH CURVES IN FE
SHORELINE SHOWN REPRES
THE MEAN RA

THIS MAP COMPLIES W
FOR SALE BY U. S. GEOLOGICAL SURVEY
A FOLDER DESCRIBING TOPOGRAP


SAN BRUNO
SHOAL
SOUTH SAN FRANCISCO
CORPORATE
BOUNDARY
558
20′
560
(SAN MATEO)
1559 III SE
561
562
17′30″
563


GN
MN
0°25′
7 MILS
17°
302 MILS
UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:24 000


1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
.5
0
1 KILOMETER

CONTOUR INTERVAL 25 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 5 FEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Q
Data shown in purp
taken 1968. This

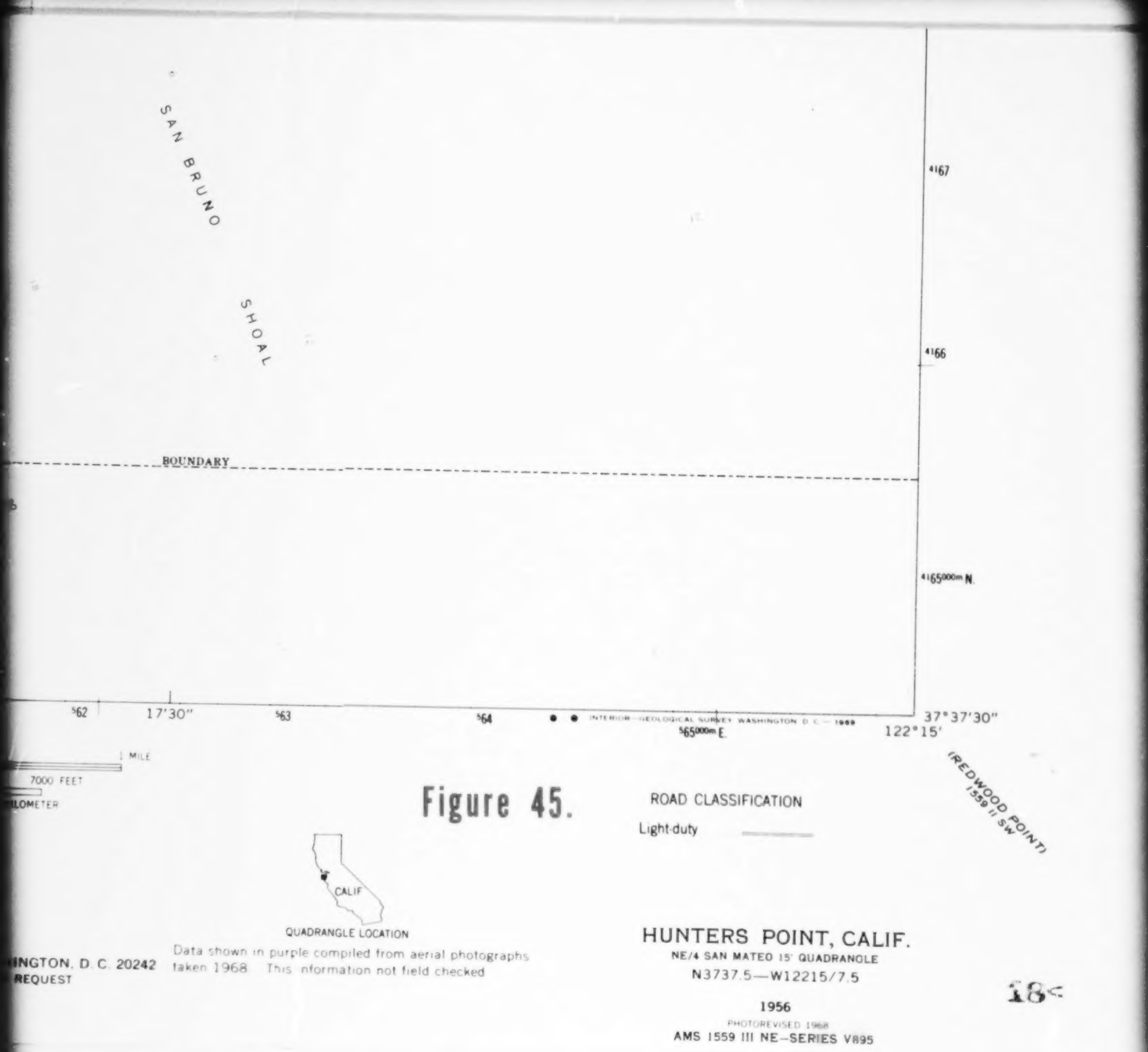

SAN BRUNO
SHOAL
BOUNDARY
4167
4166
4165000m N.
562
17'30"
563
564
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D.C.—1969
565000m E.
37°37'30"
122°15'
1 MILE
7000 FEET
ILOMETER
(REDWOOD POINT)
1559 II SW
ROAD CLASSIFICATION
Light-duty
CALIF
QUADRANGLE LOCATION
Data shown in purple compiled from aerial photographs taken 1968 This information not field checked
INGTON, D.C. 20242
REQUEST
HUNTERS POINT, CALIF.
NE/4 SAN MATEO 15' QUADRANGLE
N3737.5—W12215/7.5
1956
PHOTOREVISED 1968
AMS 1559 III NE—SERIES V895

Figure 45.

July - Identical indication.

NOTE: Indication numbers C-58 through C-78 appear on Figure 46, the San Francisco South map.

C-58 July - Five pipes entered the water at this point on the shore. There was a comma-shaped plume, dark gray-brown in color, centered about these pipes.

C-59 July - A yellow-brown wastewater was being discharged into the canal or waterway from these two locations.

C-60 July - Two outfall structures were recorded at these points with no discharge at the time of flight.

C-61 July - The two discharge points from the South San Francisco STP were active at the time of flight. This area is shown in Figure 47.

C-62 April - There were two outfalls, located at these points, that were discharging a small volume of a nearly black wastewater.

July - Only the left outfall was discharging a black substance.

C-63 July - The characteristic color of the water in this canal was a yellow-brown as it entered the San Bruno Channel.

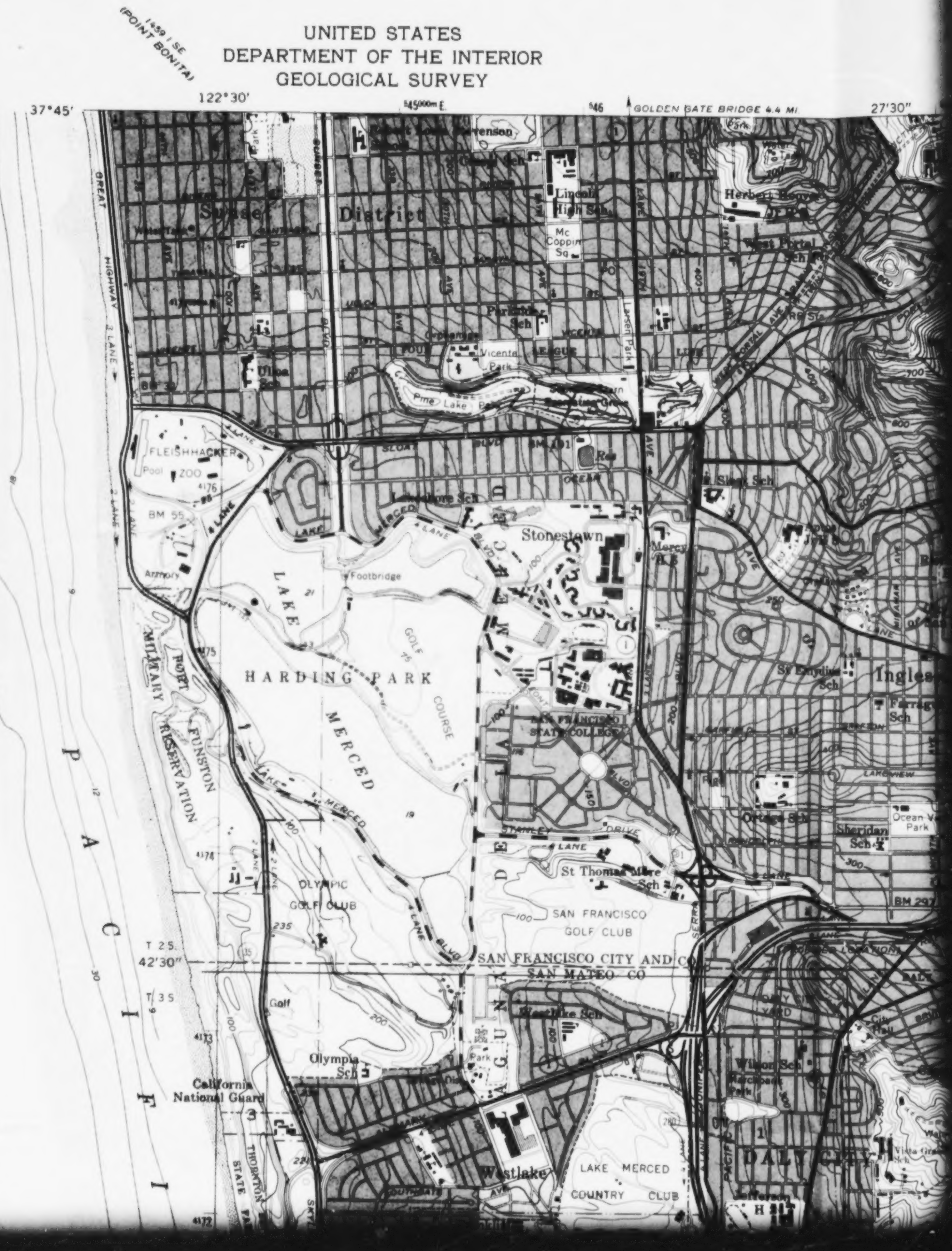
C-64 July - Dark opaque water was present in this ditch at the time of flight.

C-65 July - A pipe was entering the water at this location. There was no visible discharge.

C-66 July - This ditch had a small flow of wastewater into the Bay.

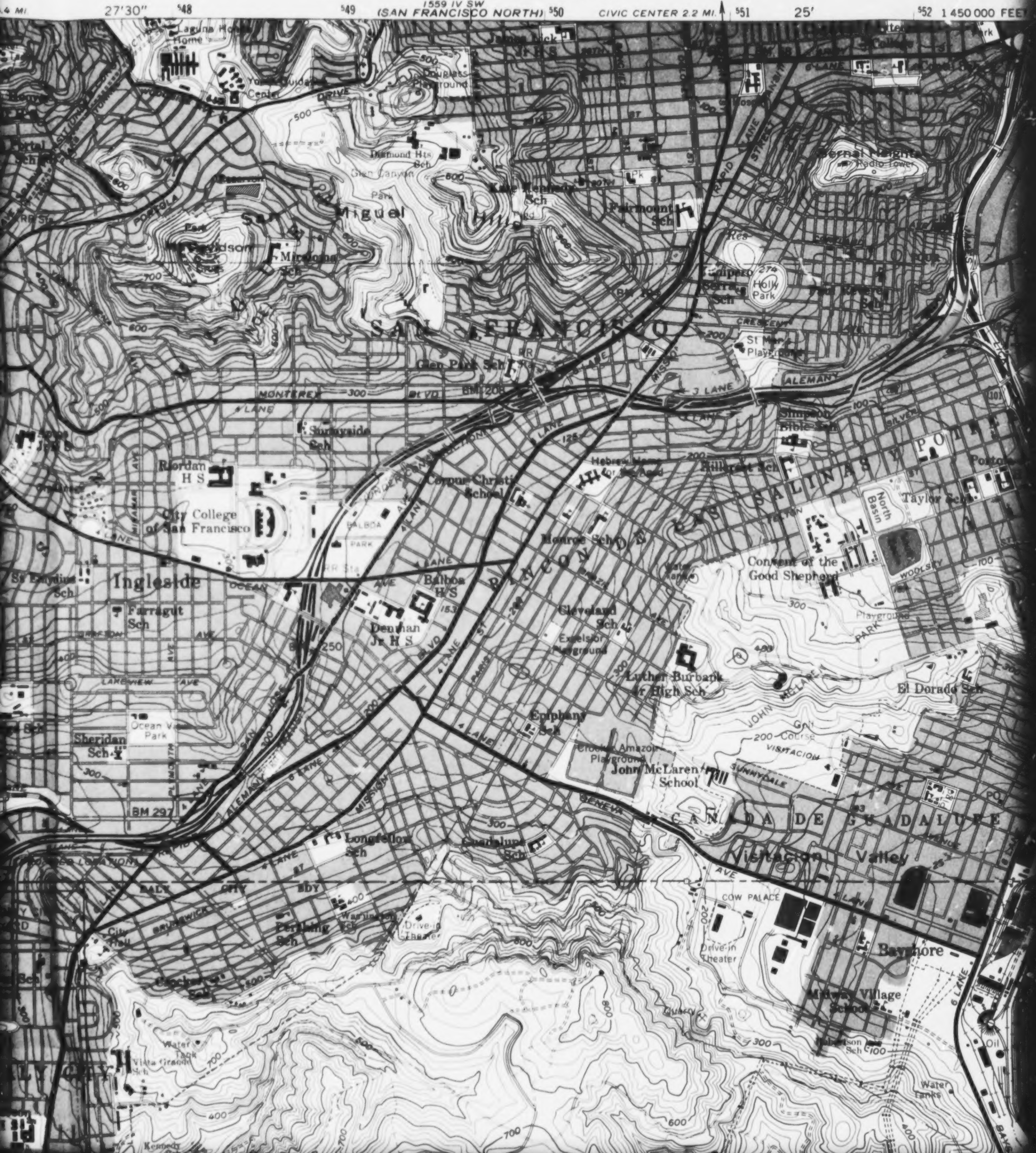
"July Night" - The discharge from this ditch was somewhat cooler as shown in Figure 48.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY


1459 I SE
(POINT BONITA)
37°45'
122°30'
545000m E.
546
GOLDEN GATE BRIDGE 4.4 MI.
27'30"
Sunset
District
Lincoln High Sch
Mc Coppin Sq
Parkside Sch
Ulloa Sch
Vicente Park
Pine Lake Park
Herbert Hoover Jr H S
West Portal Sch
WEST PORTAL AVE
GREAT HIGHWAY
SUNSET BLVD
SLOAT BLVD
OCEAN AVE
FLEISHHACKER ZOO
Pool
BM 55
Armory
Stonestown
Mercy H S
Footbridge
LAKE MERCED
HARDING PARK
GOLF COURSE
FORT FUNSTON
MILITARY RESERVATION
SAN FRANCISCO STATE COLLEGE
STANLEY DRIVE
St Emydius Sch
Ingleside
Farragut Sch
Ortega Sch
Sheridan Sch
Ocean View Park
St Thomas More Sch
OLYMPIC GOLF CLUB
SAN FRANCISCO GOLF CLUB
T 2 S.
42'30"
T 3 S
SAN FRANCISCO CITY AND CO
SAN MATEO CO
Westlake Sch
Olympia Sch
California National Guard
Westlake
LAKE MERCED COUNTRY CLUB
Wilson Sch
DALY CITY
City Hall
Jefferson H S
THORNTON STATE
P A C I F I C

65-a

STATE OF CALIFORNIA
REPRESENTED BY THE
DIRECTOR OF WATER RESOURCES

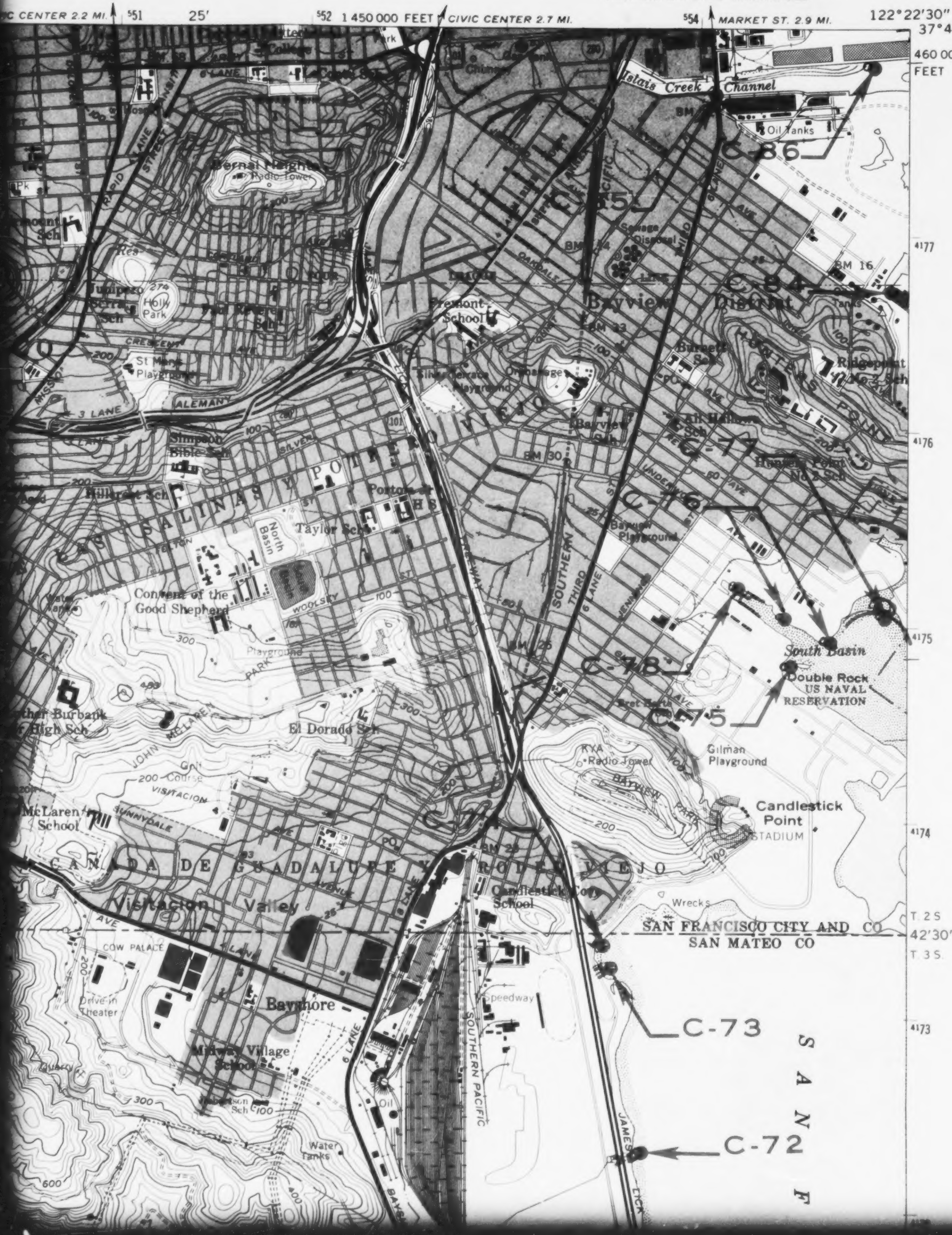


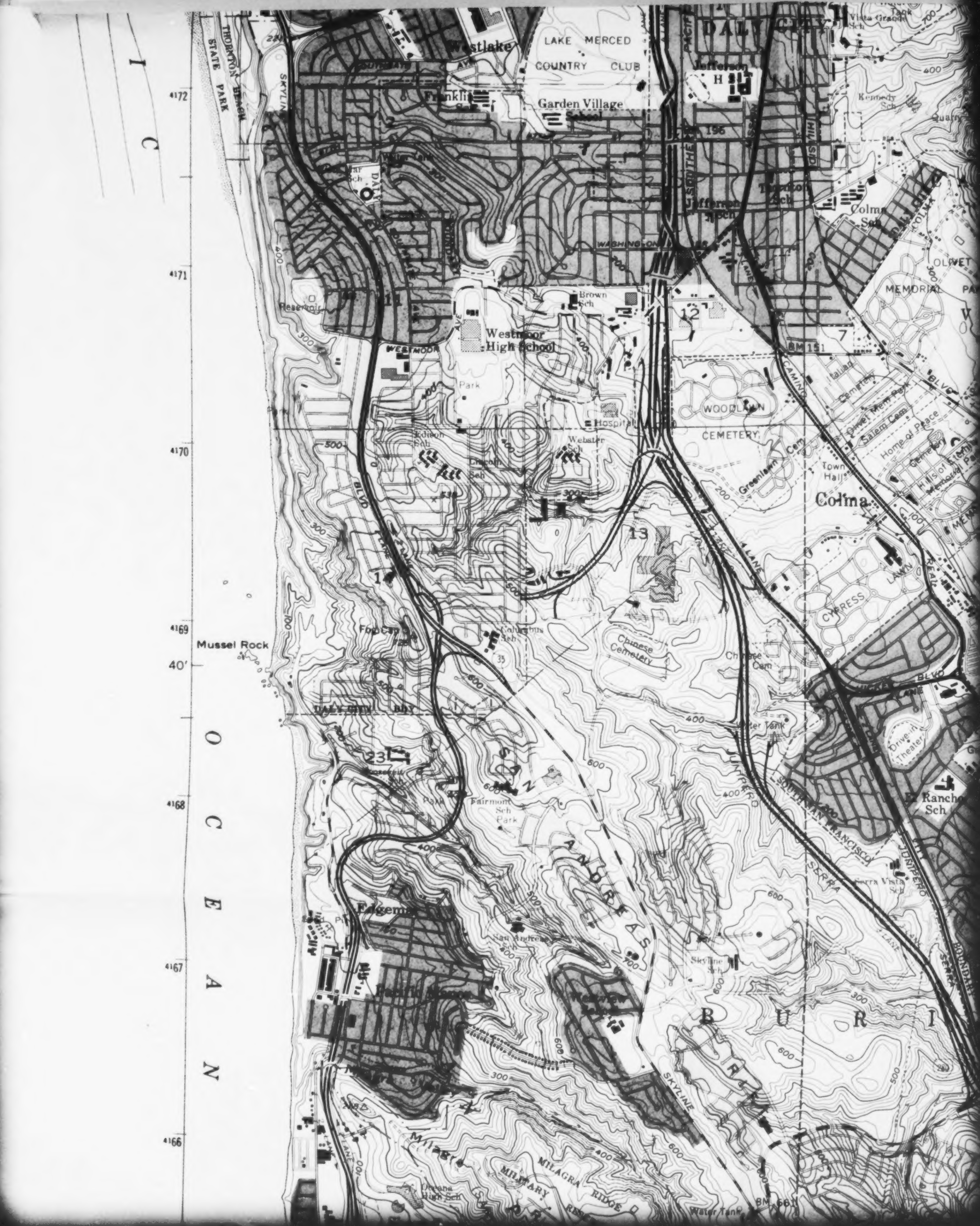
27'30"
548
549
1559 IV SW
(SAN FRANCISCO NORTH)
550
CIVIC CENTER 2.2 MI.
551
25'
552
1 450 000 FEET
Laguna Honda Home
Youth Guidance Center
Douglass Playground
Diamond Hts Sch
Glen Canyon Park
San Miguel Hills
Mt Davidson Park
Miraloma Sch
Fairmount Sch
Bernal Heights
Radio Tower
Holly Park
Junipero Serra Sch
St Marys Playground
Glen Park Sch
SAN FRANCISCO
MONTEREY BLVD
ALEMANY
Sunnyside Sch
Riordan H S
City College of San Francisco
Corpus Christi School
Hebrew Home for Aged
Simpson Bible Sch
Hillcrest Sch
Taylor Sch
North Basin
Monroe Sch
Convent of the Good Shepherd
Playground
Ingleside
St Emydius Sch
Farragut Sch
Balboa H S
Denman Jr H S
Cleveland Sch
Excelsior Playground
RINCON DE LAS SALINAS Y POTRERO
Luther Burbank Jr High Sch
El Dorado Sch
Ocean View Park
Sheridan Sch
Epiphany Sch
Crocker Amazon Playground
John McLaren School
Golf Course
JOHN McLAREN PARK
VISITACION
SUNNYDALE
GENEVA
BM 297
CANADA DE GUADALUPE
Visitacion Valley
Longfellow Sch
Guadalupe Sch
DALY CITY
COW PALACE
Drive-in Theater
Pershing Sch
Washington Sch
City Hall
Bayshore
Midway Village School
Robertson Sch
Crocker Sch
Water Tank
Vista Grande Sch
Water Tanks
Oil
Kennedy Sch
DALY CITY

65-a

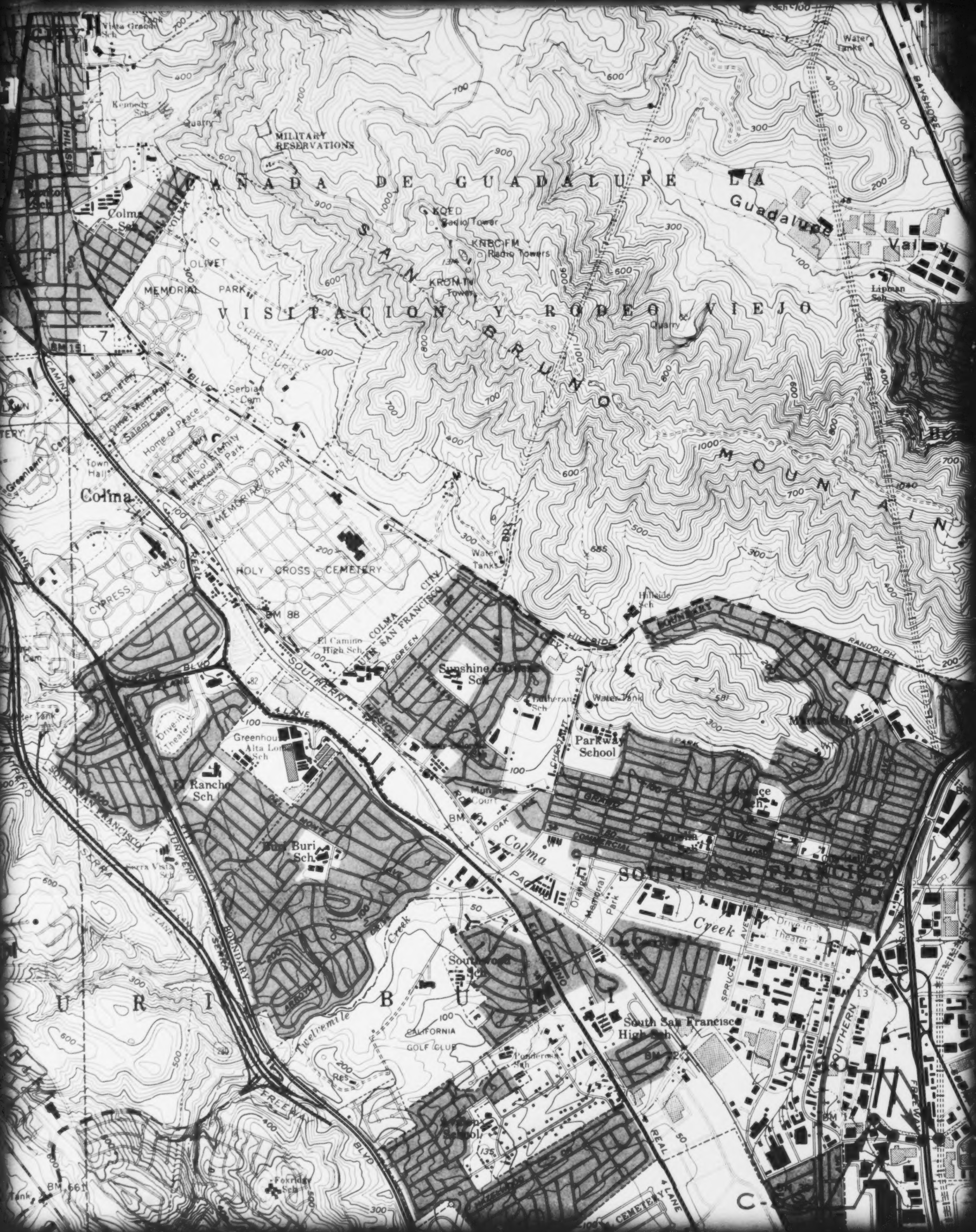
SAN FRANCISCO SOUTH QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 SAN MATEO 15' QUADRANGLE

1559 IV SE
(OAKLAND WEST)

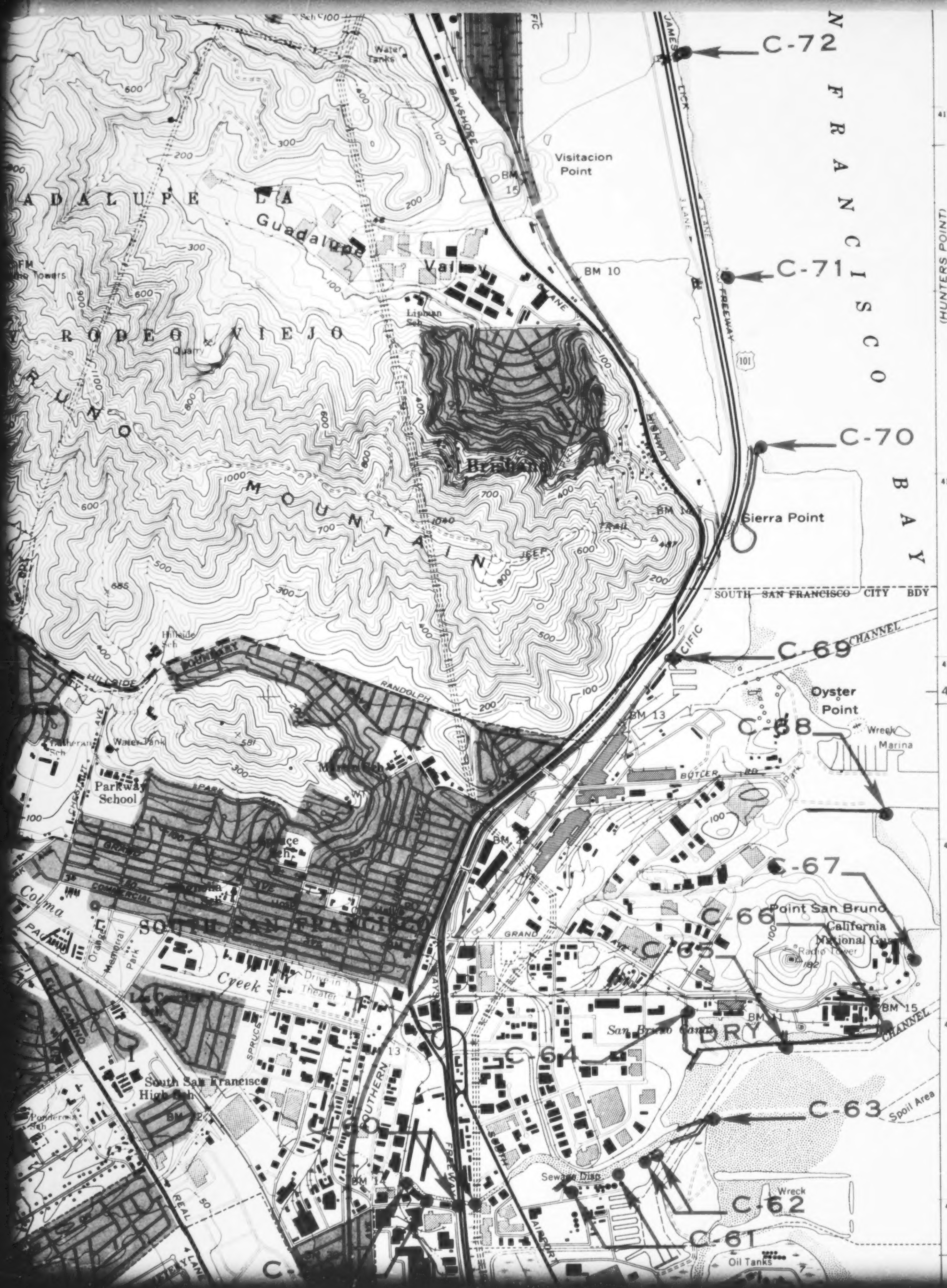

CIVIC CENTER 2.2 MI.
551
25'
552
1 450 000 FEET
CIVIC CENTER 2.7 MI.
554
MARKET ST. 2.9 MI.
122°22'30"
37°45'
460 000
FEET
4177
4176
4175
4174
4173
T. 2 S
42'30"
T. 3 S.
Islais Creek Channel
Oil Tanks
C-86
C-85
Bernal Heights
Radio Tower
Sewage Disposal
BM 16
C-84
Bayview District
Fremont School
Holy Park
St Mary's Playground
Alemany
Simpson Bible Sch
Barnett Sch
Ridgepoint No 2 Sch
All Hallows Sch
C-77
Hunters Point No 2 Sch
C-76
Bayview Playground
Hillcrest Sch
Portola Jr HS
Taylor Sch
North Basin
Convent of the Good Shepherd
Woolsey
South Basin
Double Rock
US NAVAL RESERVATION
C-78
C-75
El Dorado Sch
Gilman Playground
Radio Tower
Candlestick Point
STADIUM
McLaren School
C-74
CAÑADA DE GUADALUPE Y RODEO VIEJO
Visitacion Valley
Candlestick Cove School
Wrecks
SAN FRANCISCO CITY AND CO
SAN MATEO CO
COW PALACE
Drive-in Theater
Bayshore
Speedway
C-73
Midway Village School
SOUTHERN PACIFIC
Oil
Water Tanks
C-72
SAN F

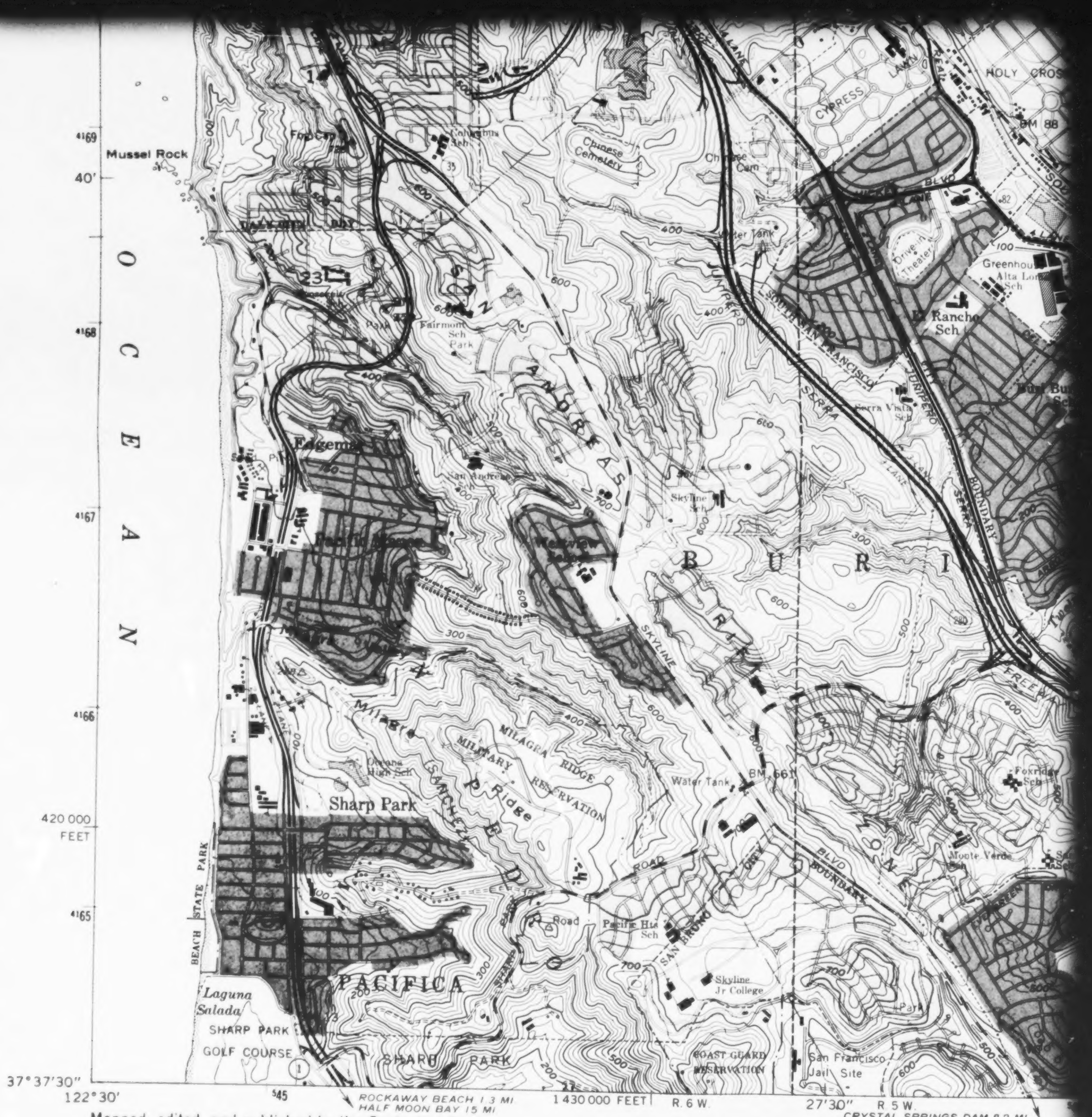


4172
4171
4170
4169
40'
4168
4167
4166
I
C
O
C
E
A
N
THORNTON BEACH STATE PARK
SKYLINE
Westlake
LAKE MERCED COUNTRY CLUB
Franklin Sch
Garden Village School
DALY CITY
Jefferson H S
Kennedy Sch
196
Jefferson Sch
Colma Sch
WASHINGTON
Reservoir
11
Brown Sch
12
7
BM 151
Westmoor High School
WESTMOOR
OLIVET MEMORIAL PARK
Park
WOODLAWN CEMETERY
Hospital
Edison Sch
Webster Sch
Greenlawn Cem
Town Hall
Colma
Olivet Mem Park
Salem Cem
Home of Peace Cemetery
Hills of Eternity Memorial Park
13
CYPRESS LAWN
1
Mussel Rock
Columbus Sch
Chinese Cemetery
Chinese Cem
35
DALY CITY BDY
HICKEY BLVD
Drive-in Theater
23
Water Tank
Fairmont Sch Park
Park
SAN ANDREAS
JUNIPERO SERRA
SOUTHERN PACIFIC
Rancho Sch
Serra Vista Sch
Edgemar
San Andreas Sch
Skyline Sch
B U R I
SKYLINE
Milagra
MILAGRA RIDGE
MILITARY RES
Oceana High Sch
Water Tank
BM 661
300
400
500
600
700



Vista Grande Sch
Kennedy Sch
Quarry
MILITARY RESERVATIONS
CANADA DE GUADALUPE LA
Guadalupe Valley
KQED Radio Tower
KNBC-FM Radio Towers
KRON-TV Tower
Lipman Sch
Colma Sch
OLIVET MEMORIAL PARK
VISITACION Y RODEO VIEJO
SAN BRUNO MOUNTAIN
CYPRESS HILLS GOLF COURSE
Italian Cemetery
Serbian Cem
Salem Cem
Home of Peace Cemetery
Hills of Eternity Memorial Park
Greenlawn Cem
Town Hall
Colma
MEMORIAL PARK
HOLY CROSS CEMETERY
Water Tanks
CYPRESS LAWN
BM 88
El Camino High Sch
SOUTHERN PACIFIC
COLMA CITY
SOUTH SAN FRANCISCO
Sunshine Gardens Sch
Hillside Sch
HILLSIDE BOUNDARY
RANDOLPH
Lutheran Sch
Water Tank
Parkway School
Drive-in Theater
Greenhouse
Alta Loma Sch
El Rancho Sch
Buri Buri Sch
Serra Vista Sch
JUNIPERO SERRA BOUNDARY
Colma Creek
SOUTH SAN FRANCISCO
GRAND
COMMERCIAL
Orange Memorial Park
Los Cerritos Sch
Southwood Sch
EL CAMINO REAL
BURI BURI
Twelvemile Creek
CALIFORNIA GOLF CLUB
South San Francisco High Sch
Ponderosa Sch
FREEWAY
BLVD
CEMETERY LANE
Foxridge Sch
BM 661
BAYSHORE
SOUTHERN PACIFIC
Drive-in Theater
BM 14
BM 151


C-72
C-71
C-70
C-69
C-68
C-67
C-66
C-65
C-64
C-63
C-62
C-61
C-60
SAN FRANCISCO BAY
Visitacion Point
Sierra Point
Oyster Point
Marina
Wreck
Point San Bruno
California National Guard
Radio Tower
182
BM 15
CHANNEL
Spoil Area
Oil Tanks
Sewage Disp
SOUTH SAN FRANCISCO CITY BDY
SOUTH SAN FRANCISCO
Guadalupe Valley
GUADALUPE LA
RODEO VIEJO
SAN BRUNO MOUNTAIN
Brisbane
Quarry
Lipman Sch
Parkway School
Hillside Sch
Water Tank
Water Tanks
Colma Creek
Orange Memorial Park
Drive-in Theater
South San Francisco High Sch
Ponderosa Sch
San Bruno Canal
DRY
BAYSHORE
FREEWAY
101
BM 10
BM 13
BM 11
BM 14
BM 12
SOUTHERN PACIFIC
AIRPORT
EL CAMINO REAL
GRAND AVE
BUTLER RD
RANDOLPH
HILLSIDE
COMMERCIAL
JAMES LICK FREEWAY
4172
4170
4169
40'
4168
4167
4166
(HUNTERS POINT)
1559 III NE


Mussel Rock
O C E A N
SAN ANDREAS
BURI
ZONE
Edgemar
Pacific Manor
Westview
Sharp Park
PACIFICA
Laguna Salada
SHARP PARK GOLF COURSE
BEACH STATE PARK
SHARP PARK
Milagra Ridge
MILAGRA RIDGE MILITARY RESERVATION
Sanchez
Skyline Sch
Skyline Jr College
Pacific Hts Sch
Oceana High Sch
Fairmont Sch Park
Chinese Cemetery
Chinese Cem
CYPRESS LAWN
HOLY CROSS
Drive-in Theater
El Rancho Sch
Serra Vista Sch
Alta Loma Sch
Greenhouse
Fokrider Sch
Monte Verde Sch
Water Tank
BM 66
BM 88
COAST GUARD RESERVATION
San Francisco Jail Site
SKYLINE
JUNIPERO SERRA
BOUNDARY
SOUTH SAN FRANCISCO
SAN BRUNO
4169
40'
4168
4167
4166
420 000 FEET
4165
37°37'30"
122°30'
545
ROCKAWAY BEACH 1.3 MI
HALF MOON BAY 15 MI
1 430 000 FEET
R. 6 W.
27'30"
R. 5 W.
CRYSTAL SPRINGS DAM 8.2 MI.

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography by multiplex methods from aerial photographs taken 1946. Culture and partial contour revision from aerial photographs taken 1956 Field checked 1956

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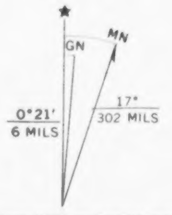
10,000-foot grid based on California coordinate system, zone 3

1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

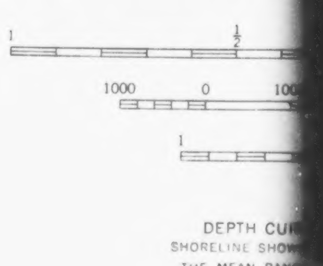
Red tint indicates areas in which only landmark buildings are shown

Data shown in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban areas


GN
MN
0°21'
6 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET


1
½
1000
0
100
1

DEPTH CU

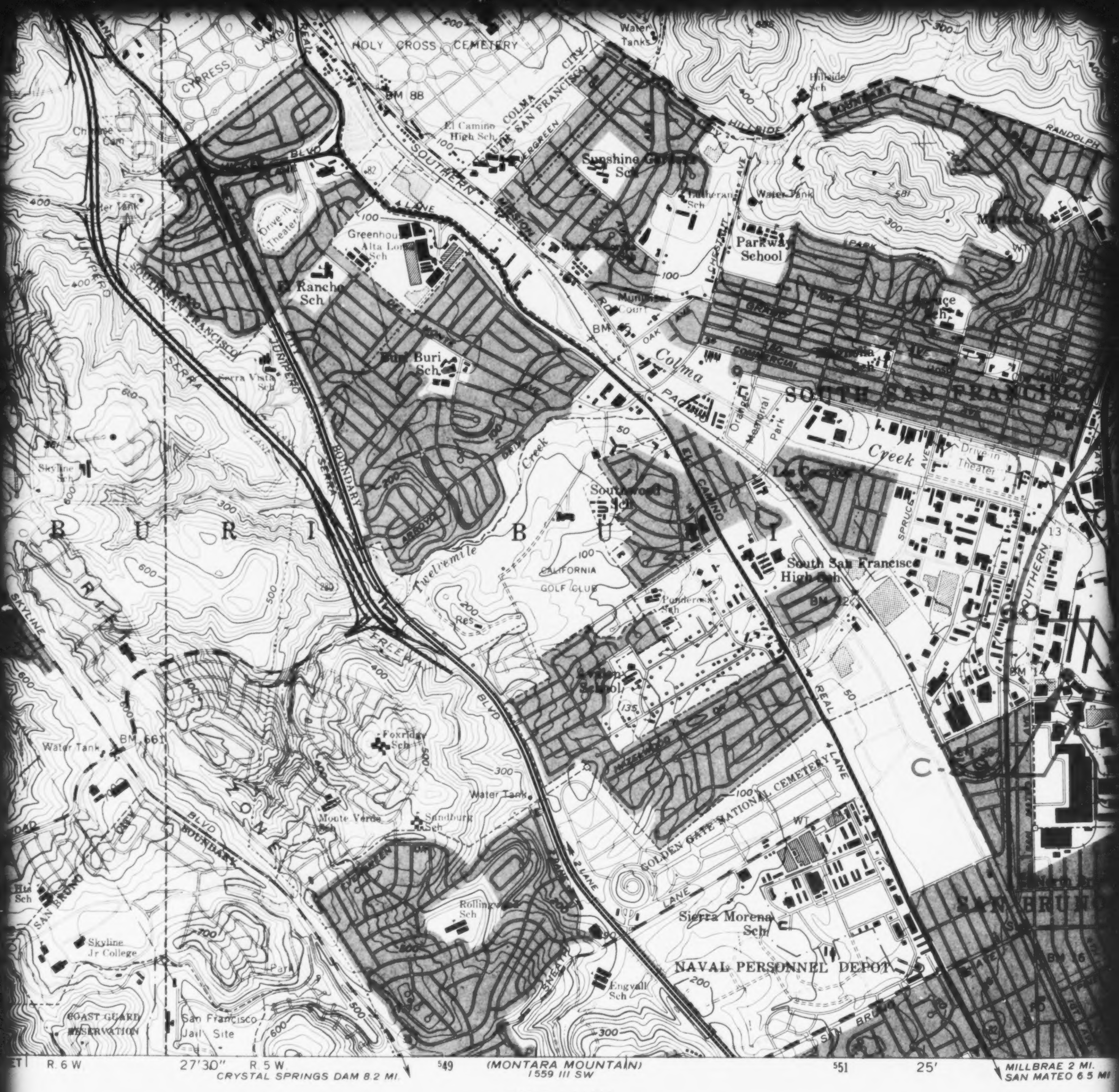
SHORELINE SHOW

THE MEAN RAN

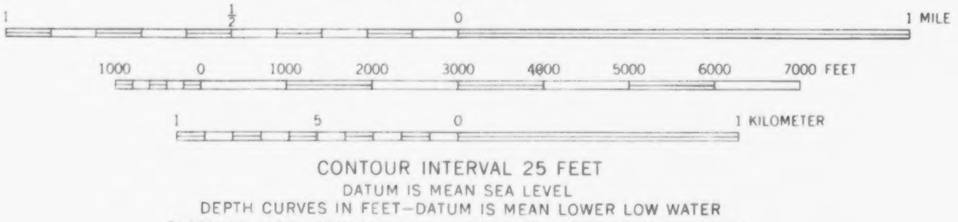
THIS MAP CO

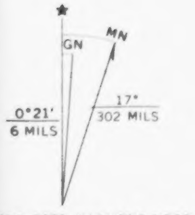
FOR SALE BY U. S. GEOLOGICAL

A FOLDER DESCRIBING T


HOLY CROSS CEMETERY
CYPRESS LAWN
BM 88
El Camino High Sch
COLMA
SOUTH SAN FRANCISCO
CITY
SOUTHERN
PACIFIC
Water Tanks
Hillside Sch
HILLSIDE
BOUNDARY
RANDOLPH
Sunshine Gardens Sch
Lutheran Sch
Water Tank
581
Parkway School
Drive-in Theater
Greenhouse
Alta Loma Sch
El Rancho Sch
Buri Buri Sch
Munroe Court
GRAND
COMMERCIAL
Spruce Sch
Colma
SOUTH SAN FRANCISCO
Orange Memorial Park
Creek
Drive-in Theater
Los Cerritos Sch
Southwood Sch
EL CAMINO REAL
SPRUCE AVE
BM 13
South San Francisco High Sch
BM 12
BM 14
CALIFORNIA GOLF CLUB
Twelvemile Creek
Res
ARROYO
B U R I B U R I
SKYLINE
JUNIPERO SERRA
SERRA
Sierra Vista Sch
Skyline Sch
FREEWAY
BOUNDARY
BLVD
Ponderosa Sch
Avalon School
135
C-B
Water Tank
BM 661
M O N T E
Foxridge Sch
Water Tank
Monte Verde Sch
Sandburg Sch
GOLDEN GATE NATIONAL CEMETERY
WESTBOROUGH
2 LANE
4 LANE
SAN BRUNO
BM 6
Rollingwood Sch
Sierra Morena Sch
NAVAL PERSONNEL DEPOT
Engvall Sch
Skyline Jr College
COAST GUARD RESERVATION
San Francisco Jail Site
Park
R. 6 W
27'30"
R 5 W
549
CRYSTAL SPRINGS DAM 8.2 MI.
(MONTARA MOUNTAIN)
1559 III SW
551
25'
MILLBRAE 2 MI.
SAN MATEO 6.5 MI

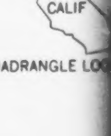
SCALE 1:24000


1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
.5
0
1 KILOMETER


GN
MN
0°21'
6 MILS
17°
302 MILS

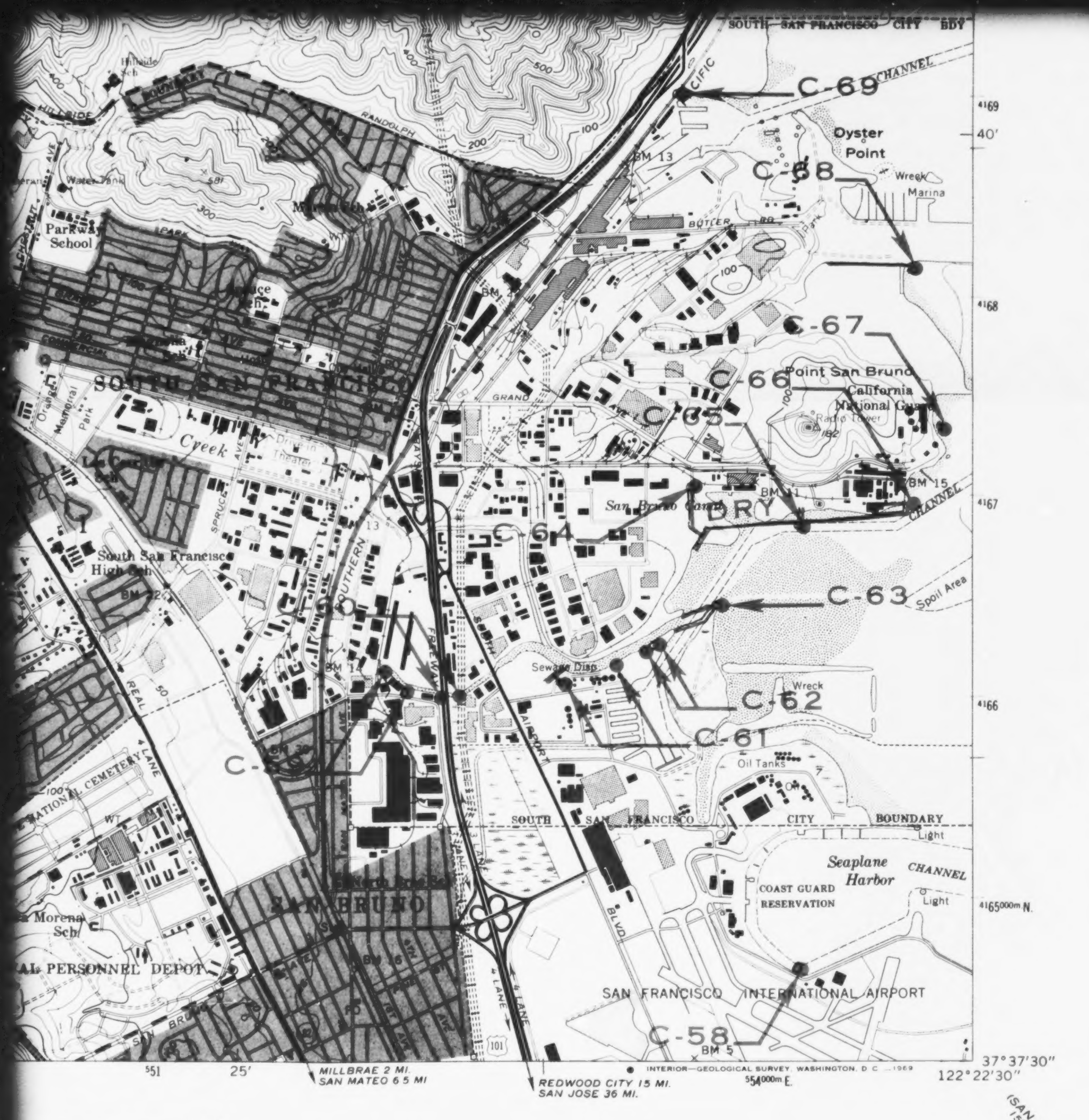
ID AND 1968 MAGNETIC NORTH
NATION AT CENTER OF SHEET

CONTOUR INTERVAL 25 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 4 FEET IN THE PACIFIC OCEAN
AND 5 FEET IN SAN FRANCISCO BAY



QUADRANGLE LO

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR WASHINGTON, D.C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST


SOUTH SAN FRANCISCO CITY BDY
CHANNEL
C-69
Oyster Point
C-68
Wreck
Marina
4169
40′
Hillside Sch
HILLSIDE
RANDOLPH
Water Tank
581
Parkway School
BUTLER RD
BM 13
4168
C-67
Point San Bruno
California National Guard
Radio Tower
182
C-66
C-65
GRAND
SOUTH SAN FRANCISCO
Orange Memorial Park
Creek
Drive-in Theater
BM 15
BM 11
San Bruno Canal
DRY
CHANNEL
4167
C-64
South San Francisco High Sch
C-63
Spoil Area
C-60
BM 14
Sewage Disp
Wreck
C-62
4166
C-61
C-59
Oil Tanks
NATIONAL CEMETERY
SOUTH SAN FRANCISCO CITY BOUNDARY
Light
Seaplane Harbor
CHANNEL
COAST GUARD RESERVATION
Light
4165000m N.
SAN BRUNO
Morena Sch
NAVAL PERSONNEL DEPOT
SAN FRANCISCO INTERNATIONAL AIRPORT
C-58
BM 5
101
37°37′30″
551
25′
MILLBRAE 2 MI.
SAN MATEO 6.5 MI.
REDWOOD CITY 15 MI.
SAN JOSE 36 MI.
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1969
554000m E.
122°22′30″
(SAN MATEO 1559 III SE)

1 MILE

6000 7000 FEET

1 KILOMETER

WATER
IGH WATER
FIC OCEAN

ANDARDS
OR WASHINGTON, D. C. 20242
LABLE ON REQUEST

Figure 46.

CALIF
QUADRANGLE LOCATION

SAN FRANCISCO SOUTH, CALIF.
NW/4 SAN MATEO 15′ QUADRANGLE
N3737.5—W12222.5/7.5

20<

1956
PHOTOREVISED 1968
AMS 1559 II NW—SERIES V895

65-b

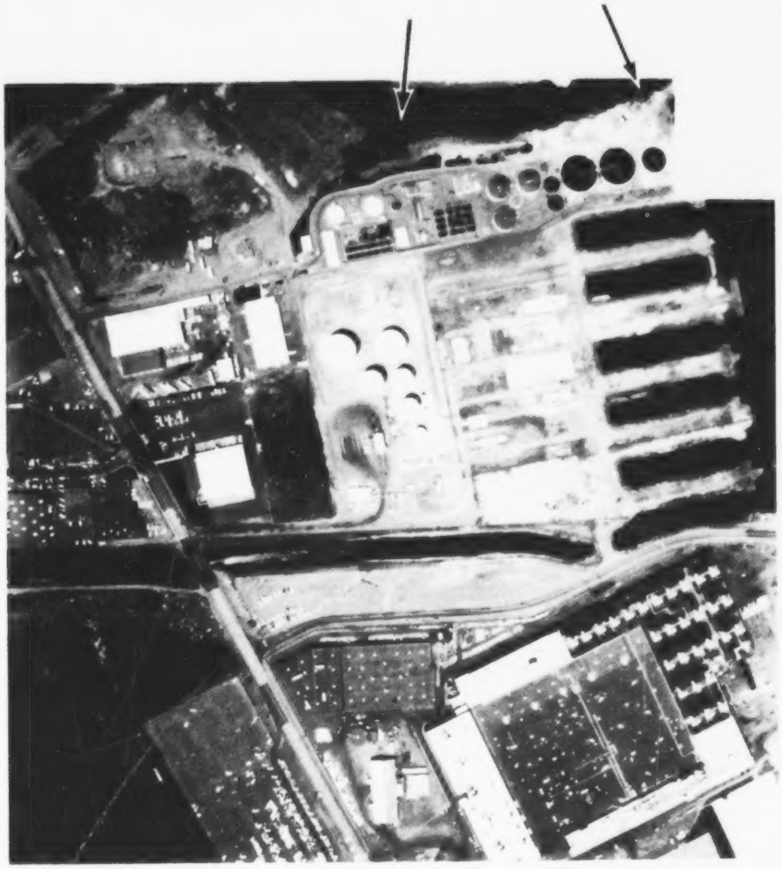


Figure 47. Photograph of the South San Francisco STP

65-c

[redacted]

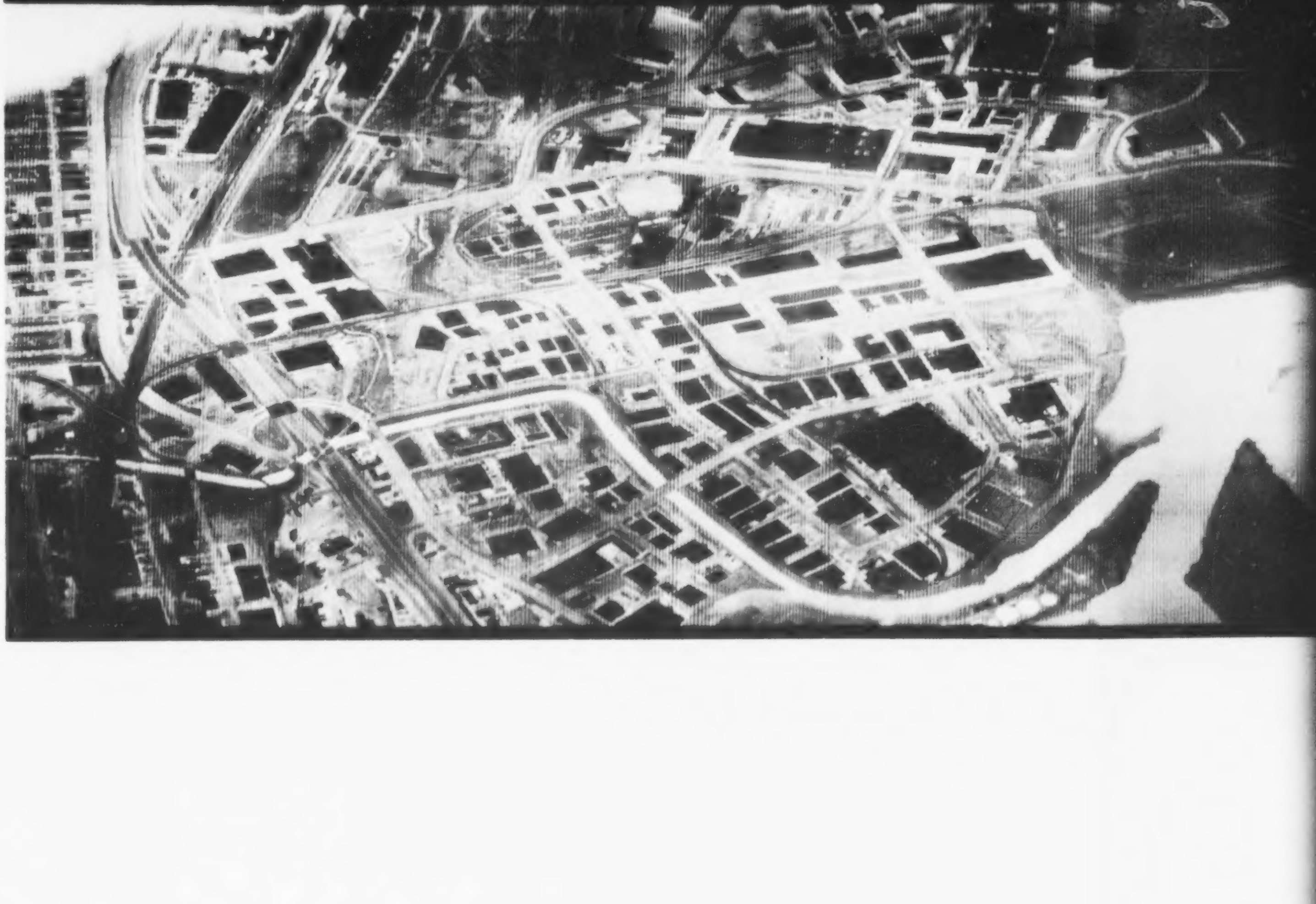


Figure 48.

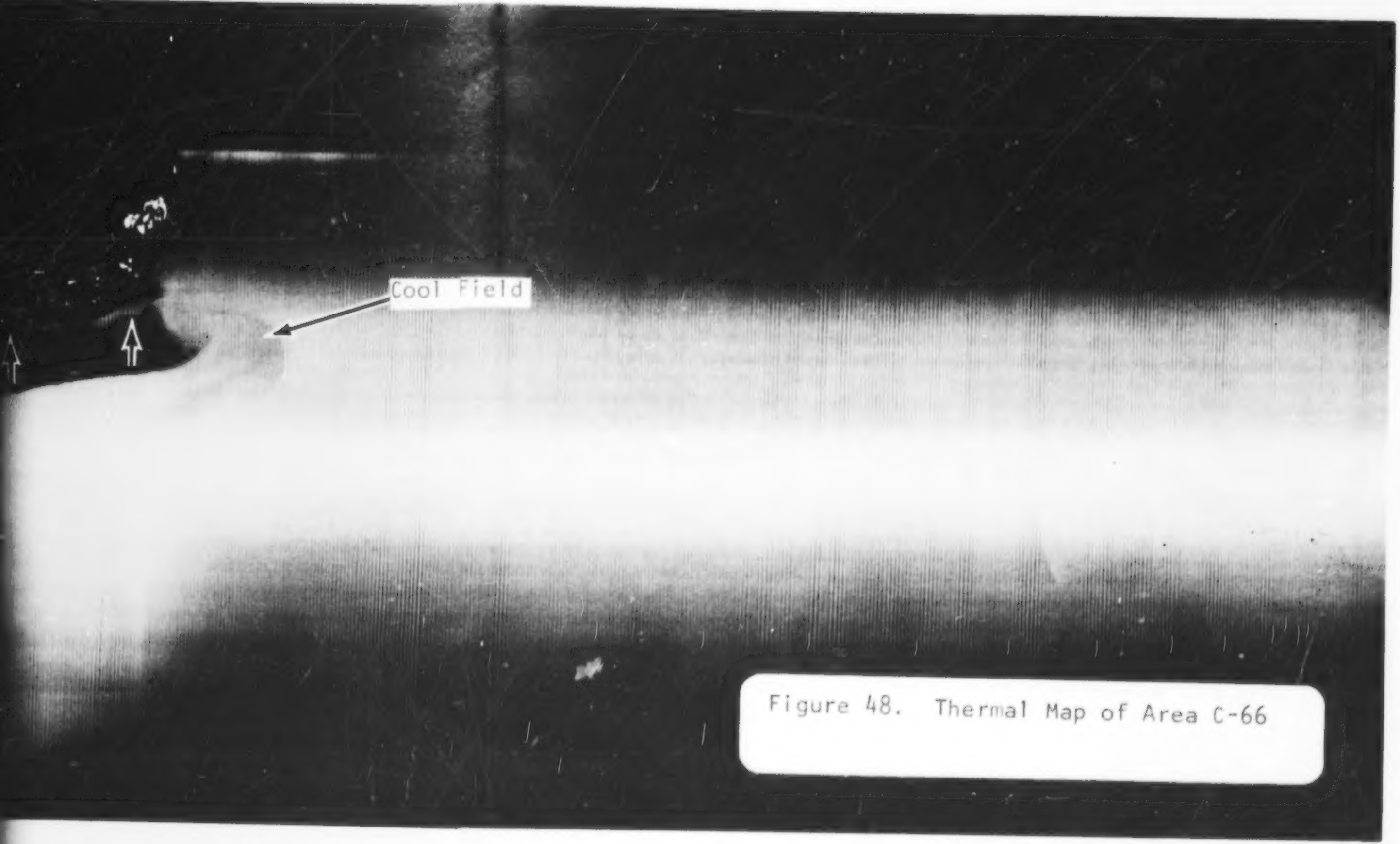


Figure 48. Thermal Map of Area C-66

C-67 April - A submerged outfall, 27 meters (90 feet) from shore, was discharging a large volume of a yellow-green effluent. This reportedly was from the Merck Chemical Plant's water purification system. The effluent was the discharge of the separated Bay water suspended solids.

July - Identical indication. The facility and effluent are shown in Figure 49.

C-68 April - This surface level outfall, a ditch as indicated on Figure 46, was not discharging at the time of flight.

July - This ditch carried a small flow at the time of flight. There was no subsequent discoloration observed in the receiving water. There also was no plant growth in or along the ditch.

C-69 July - There was a discharge at this point, from a small ditch which passed through a concrete structure and finally into the Bay. It produced no discoloration in the receiving water.

C-70 April - This drainage ditch was dry at the time of flight.

July - The pond was discharging a small volume of water through the ditch into the Bay. No apparent discoloration in the Bay waters was recorded.

C-71 April - This was the location of a large dual pipe aquaduct connecting the large pond and the Bay. At the time of flight, a large volume of water was flowing into the pond from the Bay.

66-a

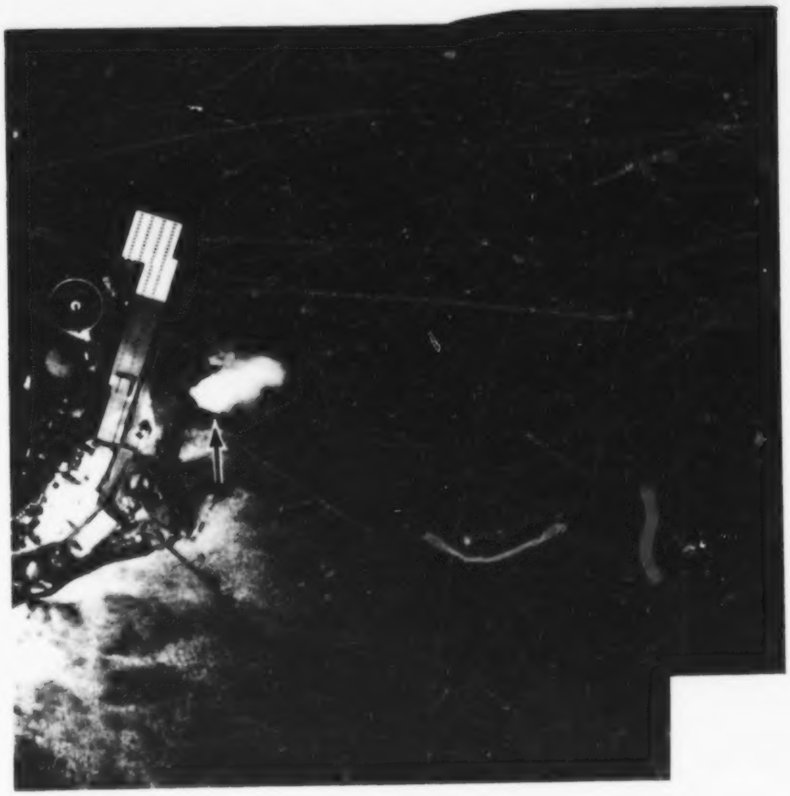


Figure 49. Photograph of the Merck Chemical Company Effluent

	July -	Same indication.
C-72	July -	Water was being discharged into the Bay through a concrete structure. There was no visible discoloration in the receiving water resulting from this discharge.
C-73	July -	A concrete outfall structure was located at this point. It was not active at the time of flight.
C-74	July -	A small pipe was exposed in the bank along the freeway. It appeared to be discharging a small volume of a red-brown wastewater.
C-75	April -	A possible subsurface outfall was located here. A concrete conduit entered the water with no visible discharge.
	July -	Same indication.
C-76	April -	These two points show signs of being suspected outfalls. There was no visible discharge at the time of flight.
	July -	Same indication as April.
C-77	July -	A gray-green wastewater was being discharged from the pond, as shown on Figure 46, into the Bay. The resultant discoloration in the receiving water dispersed quickly.
C-78	April -	A dark gray-green substance was being discharged from an outfall at this location. The shape of the Basin in this area is shown on Figure 46.
	July -	Same indication.

NOTE: Indication numbers C-79 through C-83 appear on Figure 45, the Hunters Point map.

C-79 July - The presence of an outfall structure was recorded at this point. It was not active at the time of flight.

C-80 April - A gray-brown plume was recorded as being present in this area. It extended approximately 61 meters (200 feet) out from shore. Indications in the imagery suggest the presence of a submerged outfall in the immediate vicinity.

C-81 April - A subsurface outfall measuring approximately 6.5 meters (20 feet) from the rocky shore was discharging a large volume of a gray-brown wastewater. This outfall was that of the San Francisco Southeast sewage treatment plant. The plume dispersed quickly.

July - During this mission there was no apparent discoloration due to the discharge.

C-82 April - There were two large surface level outfalls discharging cooling water from the Pacific Gas and Electric Company's Hunters Point Power Plant. The thermal data recorded a 1,195 meter (3,900 feet) thermal plume or field that extended out into the Bay at an angle of 110° with respect to true-north. This is shown in Figure 50.

July - Thermal outfalls were present at the time of flight. In addition, there were two portable skimmers across the opening into the Bay, which measured 16.2 meters (53 feet) and 10.7 meters (35 feet) in length from left to right. The thermal plume or field is shown in Figure 51.

68-a

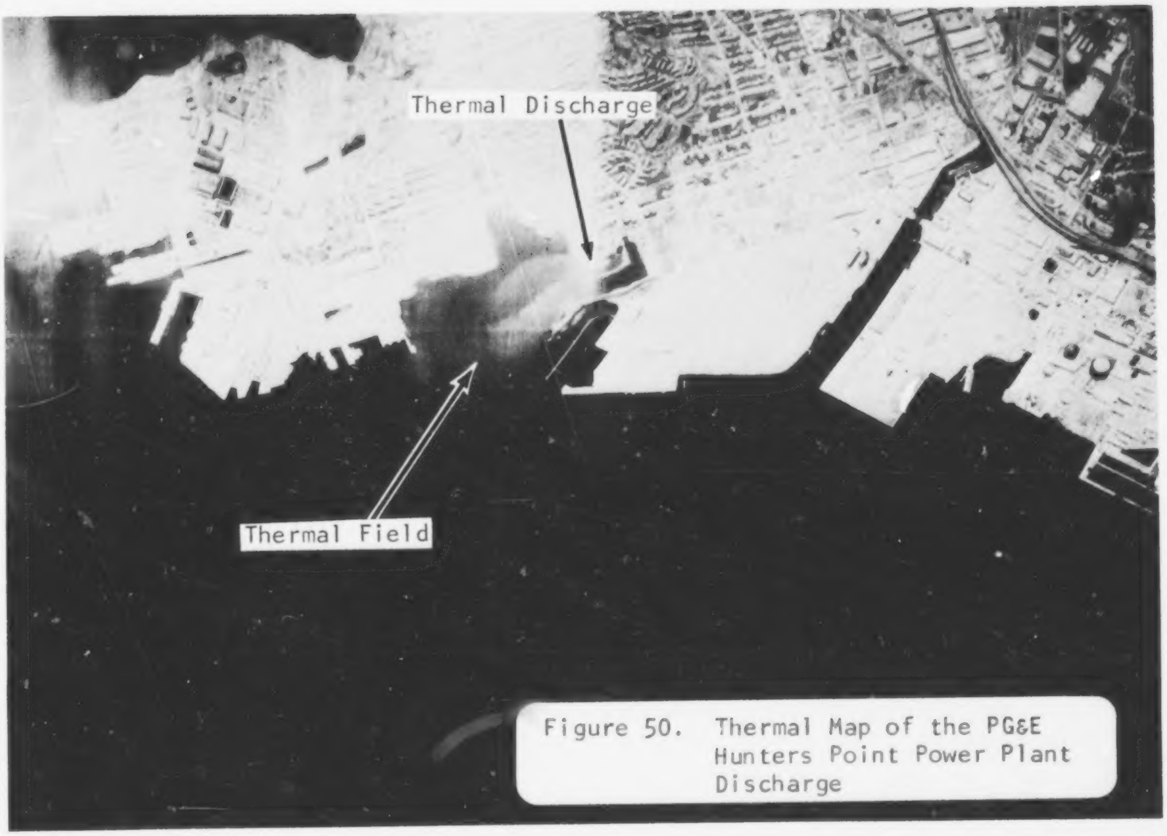

Thermal Discharge
Thermal Field

Figure 50. Thermal Map of the PG&E Hunters Point Power Plant Discharge

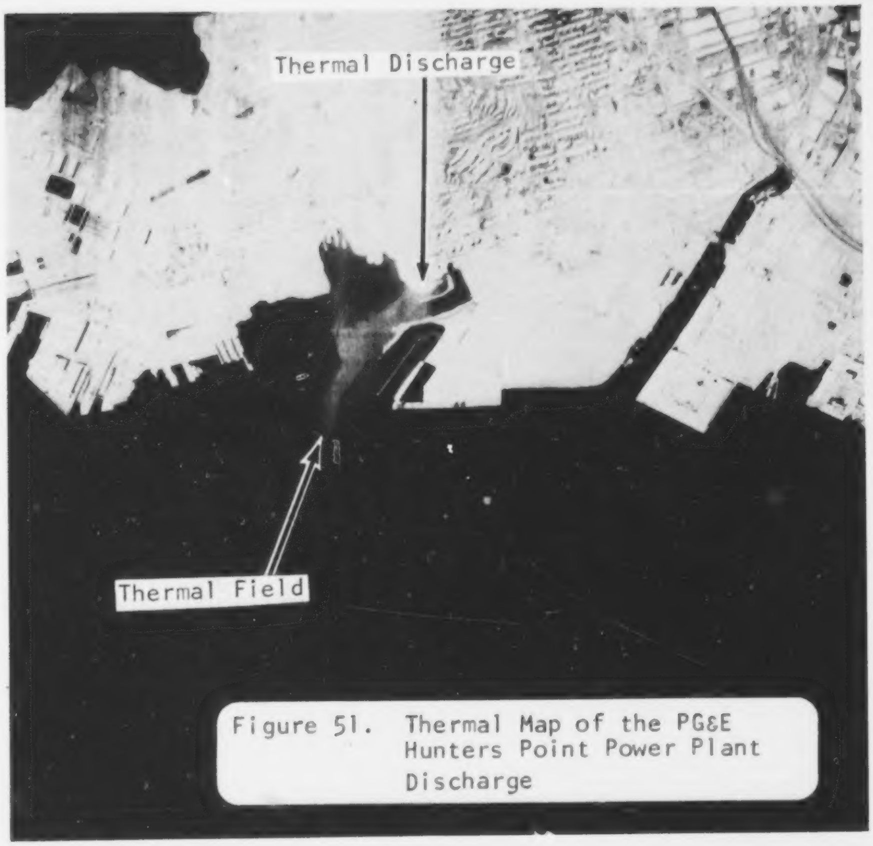

Thermal Discharge
Thermal Field

Figure 51. Thermal Map of the PG&E Hunters Point Power Plant Discharge

C-83 July - The Bay water along the dock was quite turbid, displaying a lighter green color at the time of flight. No outfall was visible.

NOTE: Indication numbers C-84 through C-86 appear on Figure 46.

C-84 July - A large discharge structure measuring 24.9 meters (82 feet) wide was recorded here. It was not discharging at the time of flight. It has three floating portable skimmers across the opening in the receiving waters.

C-85 July - This was an area that could possibly be used as an outfall. There was no discharge at the time of flight.

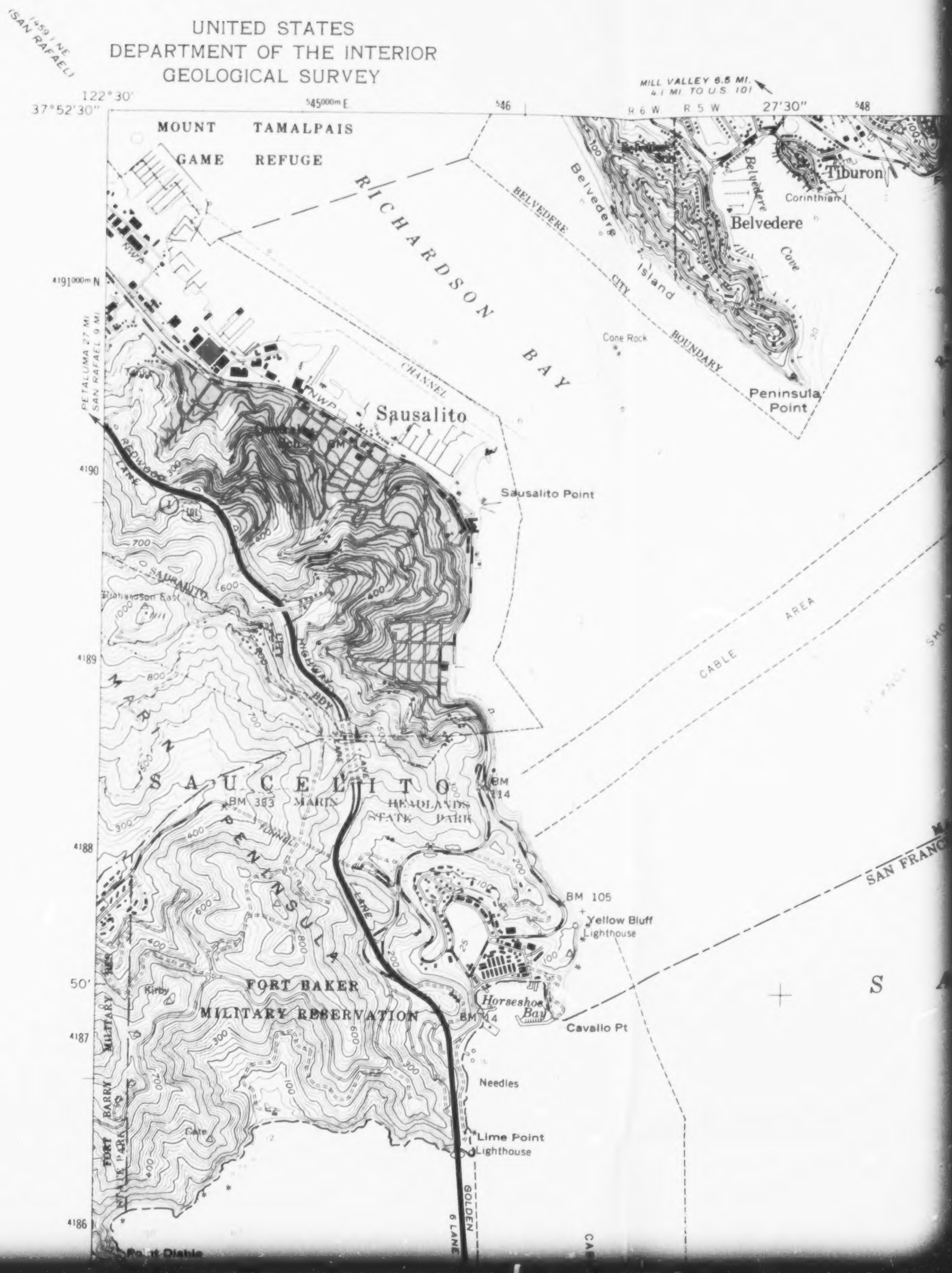
C-86 April - A surface level outfall at this particular position was discharging a gray-brown wastewater creating a visible plume. It was dispersing quickly.

NOTE: Indication numbers C-87 through C-99 appear on Figure 52, the San Francisco North map.

C-87 April - A large surface level outfall was discharging cooling water from the PG&E Potrero Point Power Plant. The thermal plume or field extended 1,068 meters (3,500 feet) in a northeasterly direction. Its maximum width was 610 meters (2,000 feet) in an east-west direction. The discharge rate for this facility was reportedly 1.3 mcmd (344 mgd).

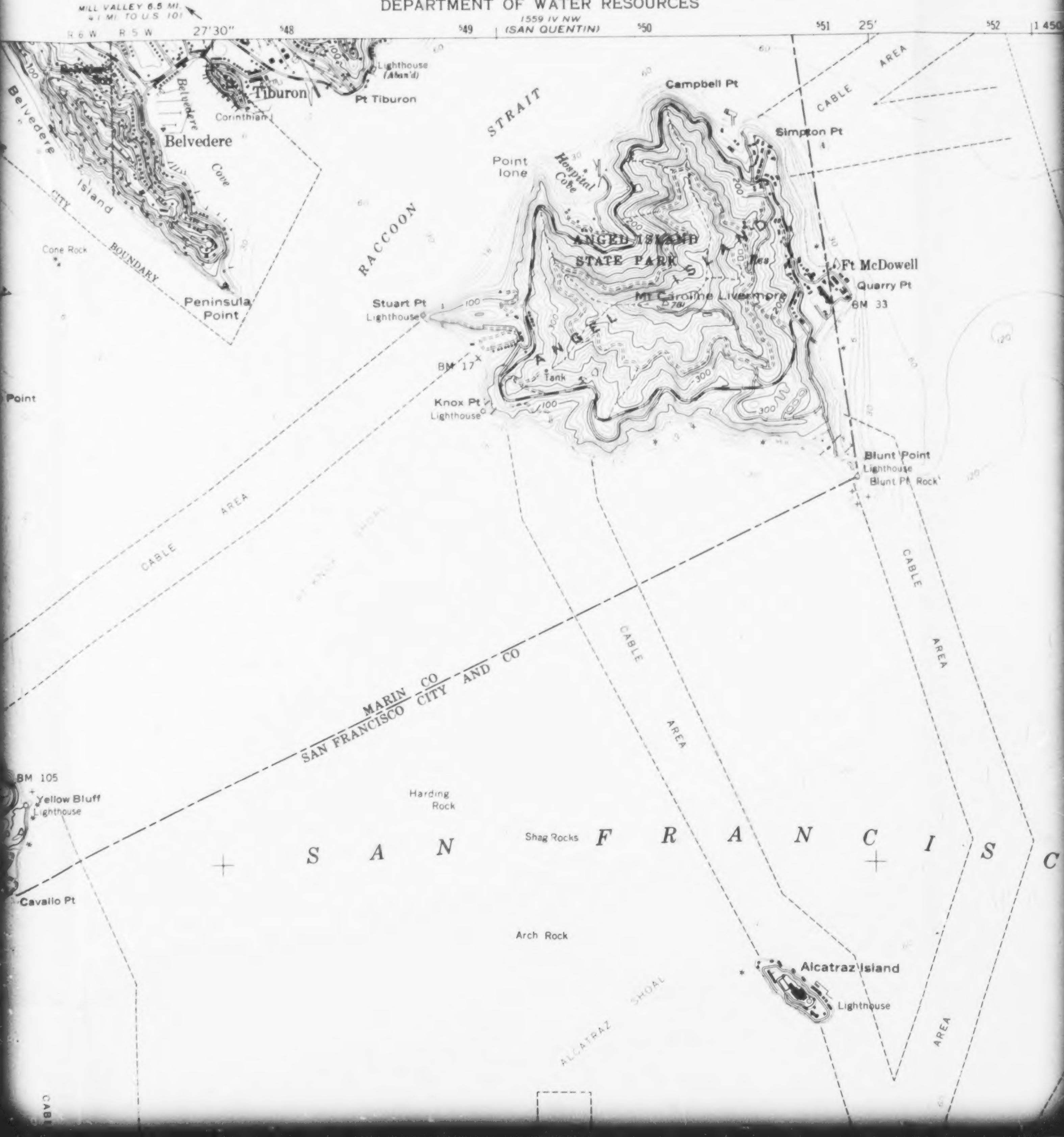
July - This discharge was present at the time of flight. The resultant thermal field is shown in Figure 53.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY


1459 I NE
(SAN RAFAEL)
122°30'
37°52'30"
545000m E.
546
R 6 W
R 5 W
27'30"
548
MILL VALLEY 6.5 MI.
4.1 MI. TO U.S. 101
MOUNT TAMALPAIS
GAME REFUGE
RICHARDSON BAY
BELVEDERE CITY BOUNDARY
Belvedere Island
Belvedere
Belvedere Cove
Tiburon
Corinthian I
Cone Rock
Peninsula Point
4191000m N.
PETALUMA 27 MI.
SAN RAFAEL 9 MI.
NWP
CHANNEL
Sausalito
Sausalito Point
4190
REDWOOD
LANE
101
SAUSALITO
CITY
BDY
HIGHWAY
Richardson East
4189
CABLE AREA
MARIN
SAUCELITO
PENINSULA
BM 383
MARIN HEADLANDS STATE PARK
BM 114
TUNNEL
4188
BM 105
Yellow Bluff
Lighthouse
SAN FRANC
50'
FORT BAKER
MILITARY RESERVATION
Kirby
Horseshoe Bay
Cavallo Pt
BM 14
4187
S
FORT BARRY MILITARY
Needles
Cove
Lime Point
Lighthouse
4186
Point Diablo
GOLDEN
6 LANE

69-a

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

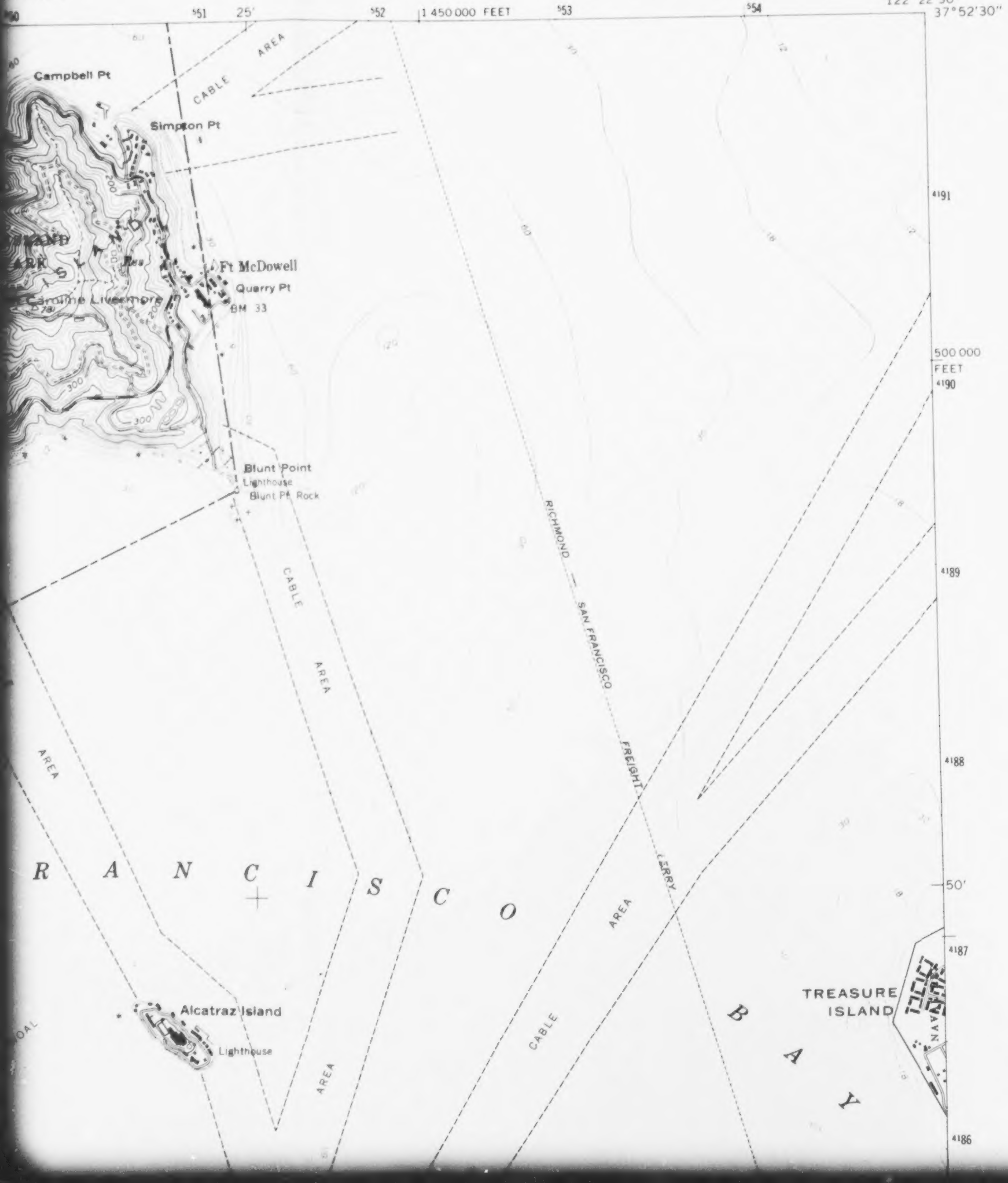

MILL VALLEY 6.5 MI.
4.1 MI. TO U.S. 101
R 6 W
R 5 W
27'30"
548
549
1559 IV NW
(SAN QUENTIN)
550
551
25'
552
1 450
Lighthouse
(Aban'd)
Pt Tiburon
Tiburon
Corinthian I
Belvedere
Belvedere Cove
Belvedere Island
CITY BOUNDARY
Cone Rock
Peninsula Point
STRAIT
RACCOON
Point Ione
Hospital Cove
Campbell Pt
Simpton Pt
ANGEL ISLAND STATE PARK
ANGEL ISLAND
Res
Mt Caroline Livermore
781
Ft McDowell
Quarry Pt
BM 33
Stuart Pt
Lighthouse
BM 17
Tank
Knox Pt
Lighthouse
Blunt Point
Lighthouse
Blunt Pt Rock
CABLE AREA
CABLE AREA
CABLE AREA
CABLE AREA
Point
MARIN CO
SAN FRANCISCO CITY AND CO
BM 105
Yellow Bluff
Lighthouse
Harding Rock
Shag Rocks
SAN FRANCISC
Cavallo Pt
Arch Rock
Alcatraz Island
Lighthouse
ALCATRAZ SHOAL
AREA
CABL

a

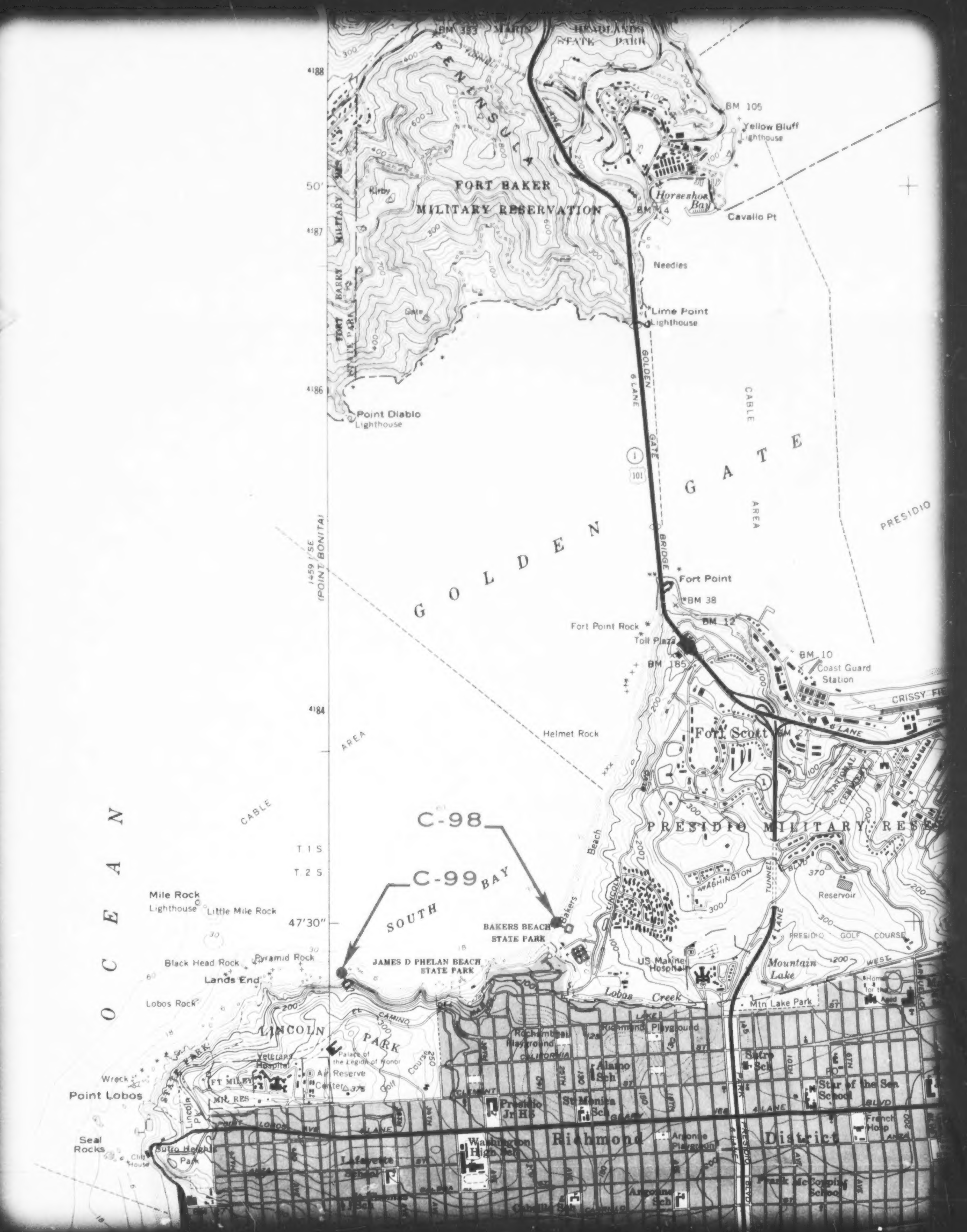
A
OURCES

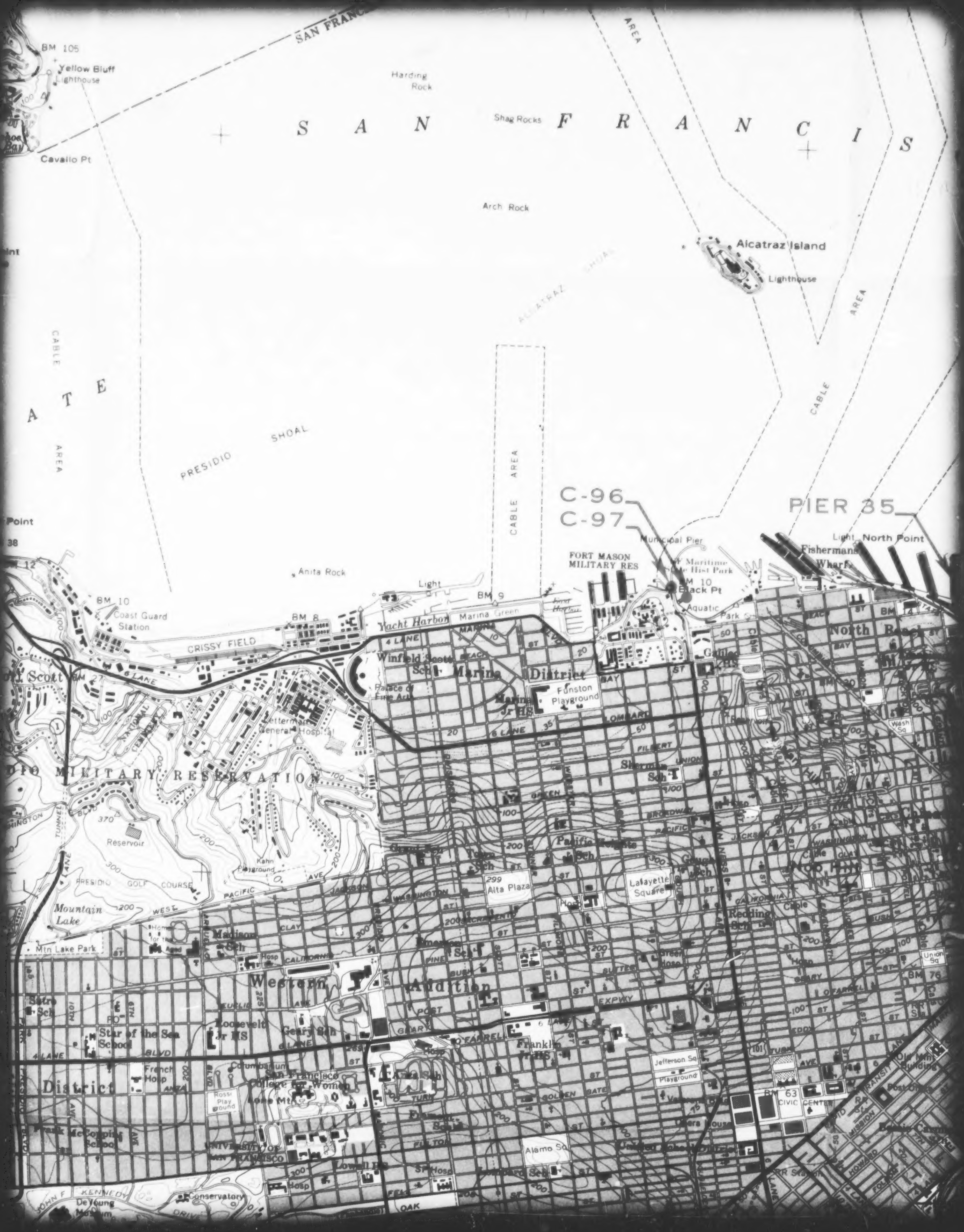
SAN FRANCISCO NORTH QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

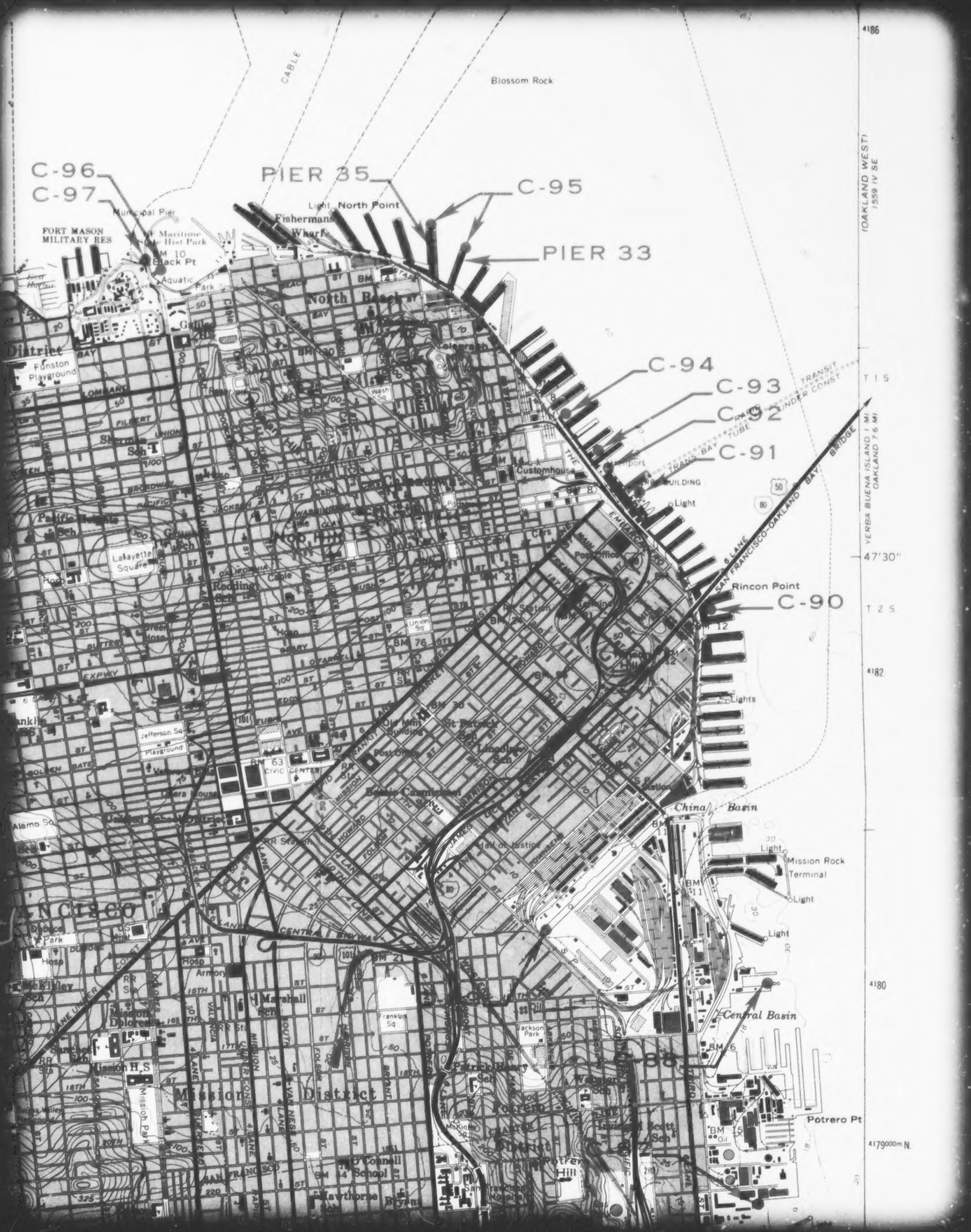
1559 IV NE
(RICHMOND)

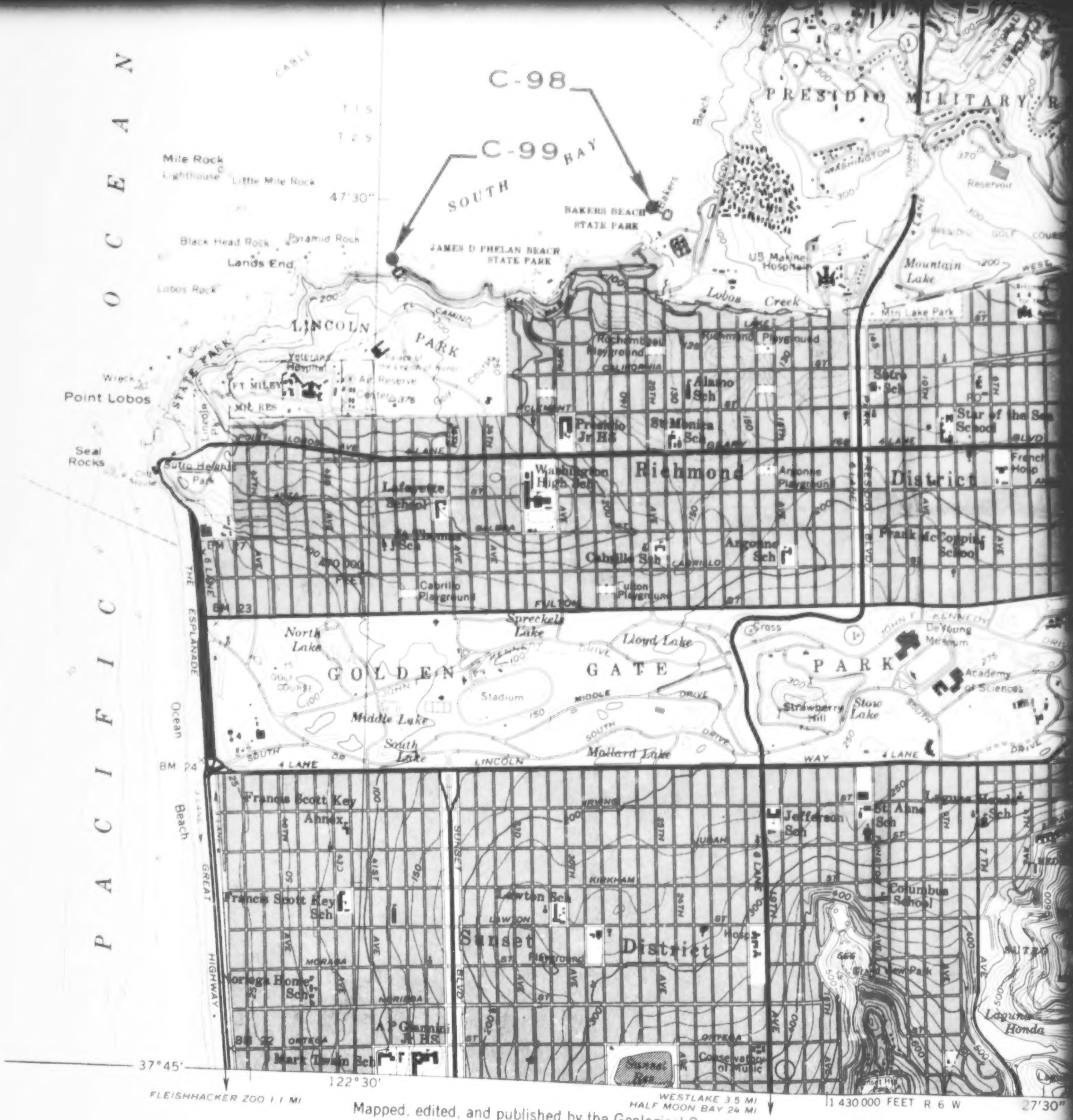


550
551
25'
552
1 450 000 FEET
553
554
122°22'30"
37°52'30"
Campbell Pt
Simpton Pt
CABLE AREA
Ft McDowell
Quarry Pt
BM 33
Caroline Livermore
Blunt Point
Lighthouse
Blunt Pt Rock
4191
500 000
FEET
4190
4189
4188
50'
4187
4186
CABLE
AREA
RICHMOND — SAN FRANCISCO FREIGHT FERRY
R A N C I S C O   B A Y
Alcatraz Island
Lighthouse
TREASURE
ISLAND
NAVAL
200
300


C-98
C-99
MARIN HEADLANDS STATE PARK
PENINSULA
FORT BAKER MILITARY RESERVATION
FORT BARRY MILITARY RESERVATION
BM 105
Yellow Bluff Lighthouse
Horseshoe Bay
BM 14
Cavallo Pt
Needles
Lime Point Lighthouse
Point Diablo Lighthouse
GOLDEN GATE BRIDGE
6 LANE
CABLE AREA
GOLDEN GATE
PRESIDIO
1459 I SE (POINT BONITA)
4188
50'
4187
4186
4184
Fort Point
BM 38
BM 12
Fort Point Rock
Toll Plaza
BM 185
BM 10
Coast Guard Station
CRISSY FIELD
Fort Scott
BM 27
Helmet Rock
PRESIDIO MILITARY RESERVATION
T 1 S
T 2 S
47'30"
SOUTH BAY
Bakers Beach
BAKERS BEACH STATE PARK
JAMES D PHELAN BEACH STATE PARK
Mile Rock Lighthouse
Little Mile Rock
Black Head Rock
Pyramid Rock
Lands End
Lobos Rock
OCEAN
LINCOLN PARK
Palace of the Legion of Honor
Golf Course
Veterans Hospital
FT MILEY MIL RES
Air Reserve Center
Wreck
Point Lobos
Seal Rocks
Cliff House
Sutro Heights Park
Lincoln Park
US Marine Hospital
Lobos Creek
Mountain Lake
Mtn Lake Park
Reservoir
PRESIDIO GOLF COURSE
WASHINGTON BLVD
TUNNEL
Rochambeau Playground
Richmond Playground
Alamo Sch
Presidio Jr HS
St Monica Sch
Sutro Sch
Star of the Sea School
French Hosp
Washington High Sch
Richmond District
Argonne Playground
Lafayette School
Frank McCoppin School
Argonne Sch
PARK PRESIDIO BLVD
POINT LOBOS AVE
EL CAMINO DEL MAR
CLEMENT
GEARY BLVD
CALIFORNIA
WEST PACIFIC AVE
101
1


C-96
C-97
PIER 35
SAN FRANCISCO
Yellow Bluff Lighthouse
BM 105
Cavallo Pt
Harding Rock
Shag Rocks
Arch Rock
Alcatraz Island
Lighthouse
ALCATRAZ SHOAL
CABLE AREA
PRESIDIO SHOAL
Anita Rock
Municipal Pier
Maritime State Hist Park
Black Pt
Aquatic Park
Fisherman's Wharf
North Point
Light
FORT MASON MILITARY RES
BM 10
BM 9
BM 8
Coast Guard Station
CRISSY FIELD
Yacht Harbor
Marina Green
Palace of Fine Arts
Letterman General Hospital
Winfield Scott Sch
Marina District
Marina Jr HS
Funston Playground
North Beach
PRESIDIO MILITARY RESERVATION
NATIONAL CEMETERY
Reservoir
Kahn Playground
PRESIDIO GOLF COURSE
Mountain Lake
Mtn Lake Park
Sherman Sch
Pacific Heights Sch
Alta Plaza
Lafayette Square
Nob Hill
Wash Sq
Union Sq
Western Addition
Madison Sch
Emerson Sch
Roosevelt Jr HS
Geary Sch
Star of the Sea School
French Hosp
Sutro Sch
Richmond District
Franklin Jr HS
Jefferson Sq Playground
CIVIC CENTER
BM 63
BM 76
Opera House
San Francisco College for Women
Lone Mtn
Rossi Playground
Frank McCoppin School
UNIVERSITY OF SAN FRANCISCO
Alamo Sq
Lowell HS
Conservatory
De Young Museum
JOHN F KENNEDY DRIVE
OAK
FELL
Old Mint Building
Post Office
MARKET
MISSION
HOWARD
FOLSOM
VAN NESS
LOMBARD
GEARY
EXPWY
CALIFORNIA
PACIFIC
BROADWAY
WASHINGTON
JACKSON
TURK
GOLDEN GATE
FULTON


C-96
C-97
PIER 35
C-95
PIER 33
C-94
C-93
C-92
C-91
C-90
C-88
Blossom Rock
CABLE
FORT MASON MILITARY RES
Municipal Pier
Black Pt
Aquatic Park
North Point
Fishermans Wharf
North Beach
Telegraph Hill
Customhouse
Ferry Building
TRANS-BAY TUBE UNDER CONST
SAN FRANCISCO-OAKLAND BAY BRIDGE
Rincon Point
China Basin
Mission Rock Terminal
Central Basin
Potrero Pt
Chinatown
Nob Hill
Pacific Heights
Lafayette Square
Funston Playground
Union Sq
Civic Center
Jefferson Sq Playground
Alamo Sq
Duboce Park
Old Mint Building
Post Office
Hall of Justice
Franklin Sq
Jackson Park
Mission Dolores
Mission H S
Mission District
Potrero District
Lights
Light
(OAKLAND WEST) 1559 IV SE
YERBA BUENA ISLAND 1 MI
OAKLAND 7.6 MI
4186
4182
4180
4179000m N.
47'30"
T 1 S
T 2 S


C-98
C-99
PACIFIC OCEAN
SOUTH BAY
Mile Rock Lighthouse
Little Mile Rock
Black Head Rock
Pyramid Rock
Lands End
Lobos Rock
Point Lobos
Seal Rocks
Wreck
BAKERS BEACH STATE PARK
JAMES D PHELAN BEACH STATE PARK
PRESIDIO MILITARY RESERVATION
LINCOLN PARK
FT MILEY MIL RES
Veterans Hospital
Air Reserve Center
US Marine Hospital
Mountain Lake
Lobos Creek
Richmond District
Sutro Heights Park
Washington High Sch
Presidio Jr HS
Lafayette School
GOLDEN GATE PARK
North Lake
Spreckels Lake
Lloyd Lake
Middle Lake
South Lake
Mallard Lake
Stadium
Strawberry Hill
Stow Lake
De Young Museum
Academy of Sciences
Sunset District
Francis Scott Key Annex
Francis Scott Key Sch
Noriega Home Sch
A P Giannini Jr HS
Mark Twain Sch
Jefferson Sch
Lawton Sch
St Anne Sch
Columbus School
Grand View Park
Laguna Honda
Sunset Res
Conservatory of Music
Ocean Beach
THE ESPLANADE
GREAT HIGHWAY
47'30"
37°45'
122°30'
27'30"
FLEISHHACKER ZOO 1.1 MI
WESTLAKE 3.5 MI
HALF MOON BAY 24 MI
1 430 000 FEET R 6 W

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, USCE, and California Lands Commission

Topography by multiplex methods from aerial photographs taken 1946. Culture and partial contour revision from aerial photographs taken 1956. Field checked 1956

Hydrography compiled from USC&GS charts 5532 and 5535 (1956)

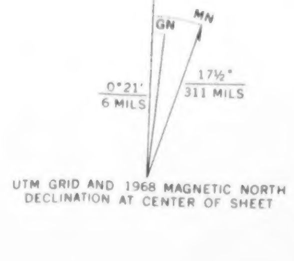
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3

1000-meter Universal Transverse Mercator Grid ticks, zone 10, shown in blue

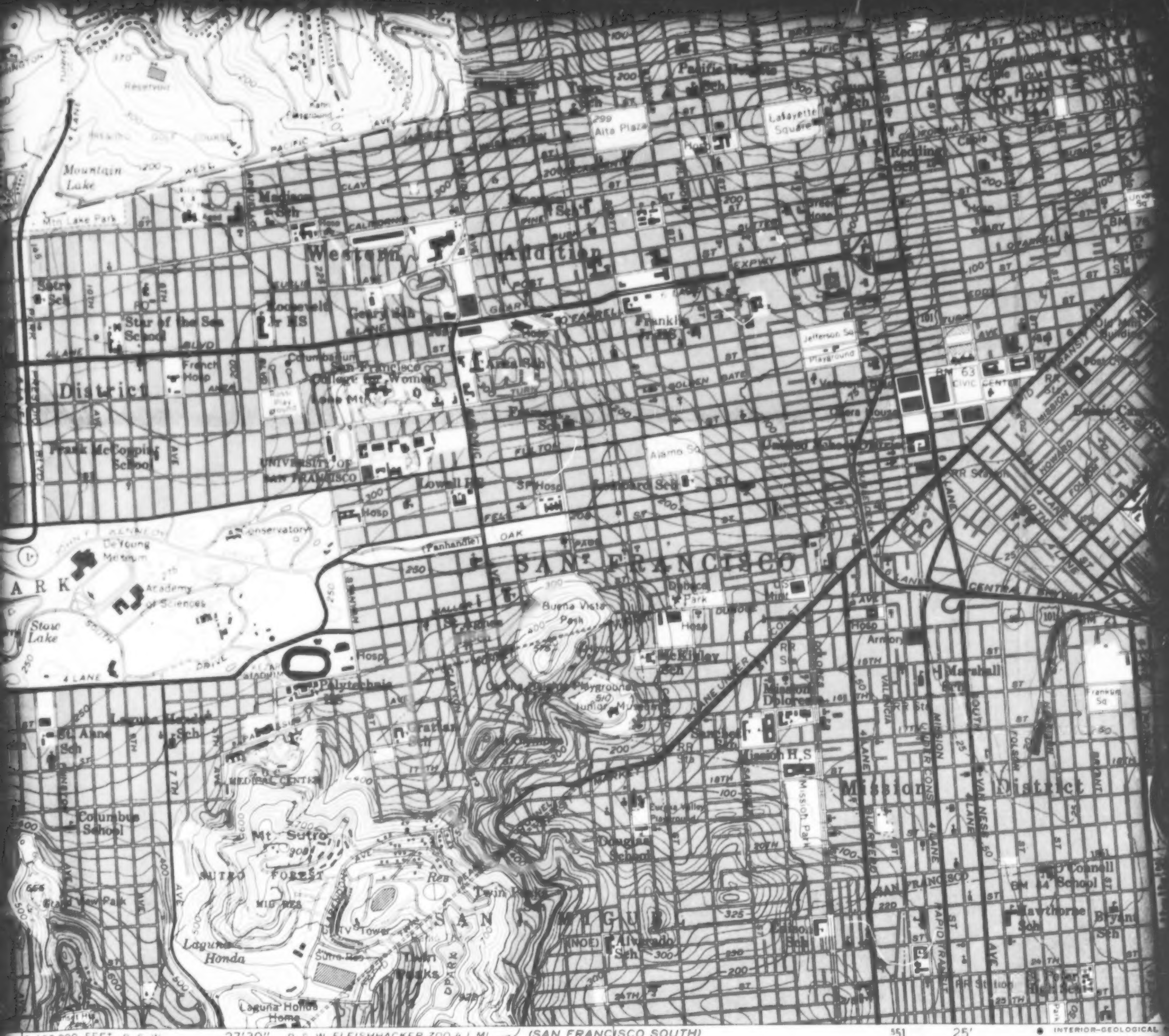
Red tint indicates areas in which only landmark buildings are shown

Revisions in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban areas


GN
MN
0°21'
6 MILS
17½°
311 MILS

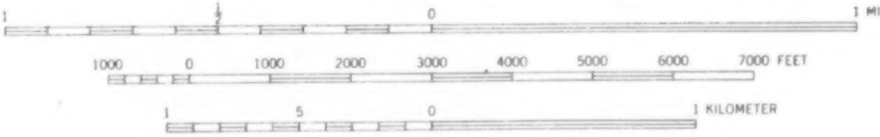
UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



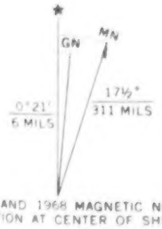
Reservoir
Mountain Lake
Mtn Lake Park
Pacific Heights
Alta Plaza
Lafayette Square
Western Addition
Sutro Sch
Roosevelt Jr HS
Star of the Sea School
District
French Hosp
San Francisco College for Women
Lone Mtn
Franklin Jr HS
Jefferson Sq
Playground
Civic Center
BM 63
Opera House
Frank McCoppin School
University of San Francisco
Lowell HS
Alamo Sq
Hosp
Observatory
DeYoung Museum
Academy of Sciences
Stow Lake
Park
Panhandle
Oak
San Francisco
Buena Vista Park
Duboce Park
Mint
McKinley Sch
Polytechnic
Playground
Junior Museum
Mission Dolores
Mission HS
Mission Park
Mission District
Marshall Sch
Franklin Sq
Medical Center
Columbus School
Mt Sutro
Sutro Forest
Twin Peaks
Laguna Honda
Laguna Honda Home
Sutro Res
TV Tower
San Miguel
Alvarado Sch
Douglas School
Eureka Valley Playground
O'Connell School
BM 34
Hawthorne Sch
Bryant Sch
RR Station
Mission
Market
Howard
Folsom
South Van Ness
Valencia
Dolores
Castro

1 430 000 FEET R 6 W 27'30" R 5 W FLEISHHACKER ZOO 4.1 MI (SAN FRANCISCO SOUTH) 1559 III NW 551 25' INTERIOR—GEOLOGICAL
DALY CITY
SAN BRUNO

SCALE 1:24 000



1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
5
0
1 KILOMETER



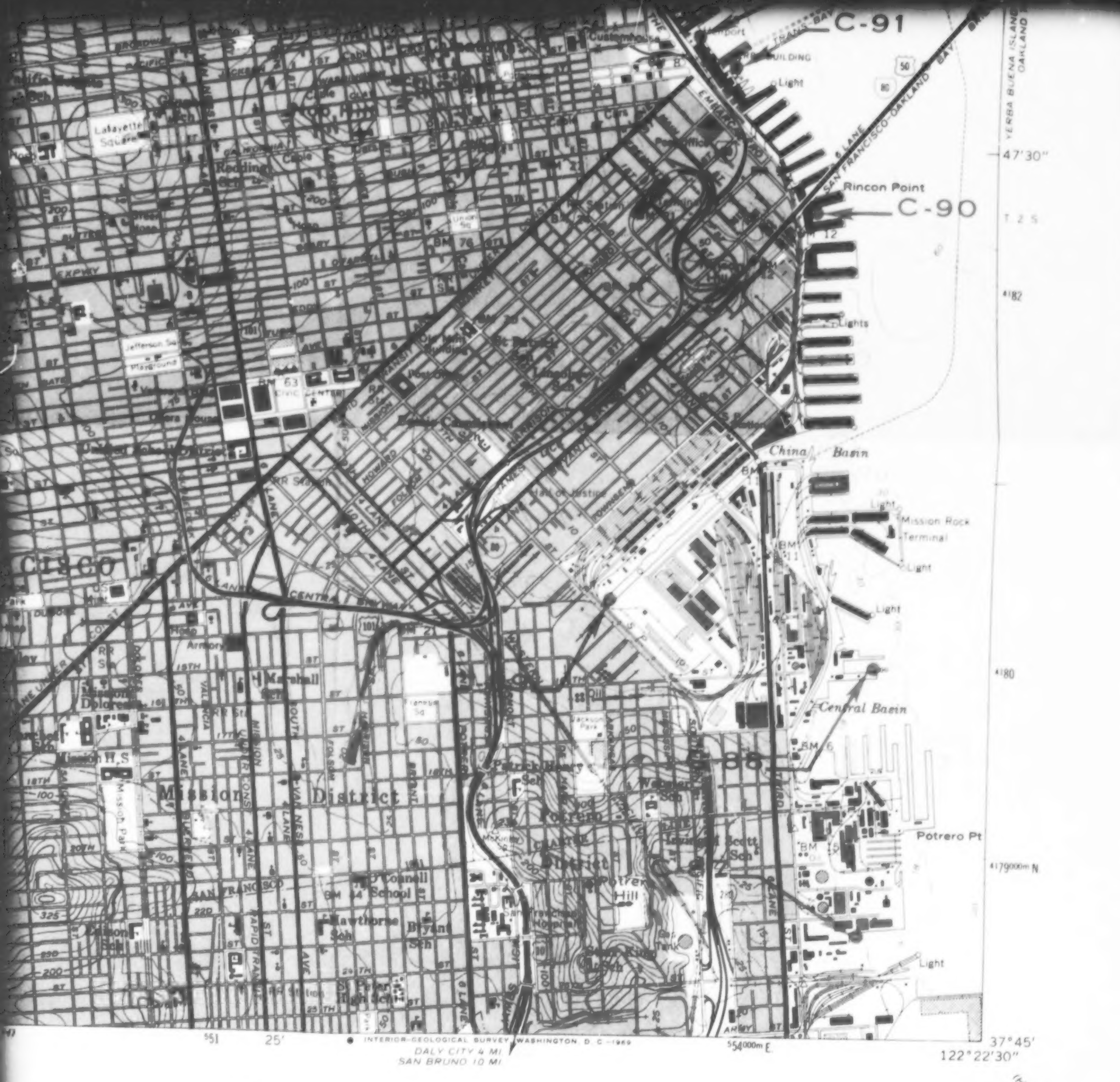
★
GN
MN
0°21'
6 MILS
17½°
311 MILS

UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 25 FEET
DASHED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 4 FEET

QUADRANGLE LOCATI

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST


C-91
C-90
C-88
Rincon Point
China Basin
Mission Rock
Terminal
Central Basin
Potrero Pt
Light
Lights
BUILDING
SAN FRANCISCO-OAKLAND BAY
YERBA BUENA ISLAND
OAKLAND
EMBARCADERO
Lafayette Square
Jefferson Sq
Playground
CIVIC CENTER
BM 63
Hall of Justice
Mission Dolores
Mission H.S.
Mission Park
Franklin Sq
Jackson Park
Marshall Sch
Patrick Henry Sch
Webster Sch
Starr King Sch
O'Connell School
Hawthorne Sch
Bryant Sch
Edison Sch
St Peter High Sch
Potrero Hill
Mission
District
Potrero
District
CISCO
Armory
CENTRAL SKYWAY
47'30"
4182
4180
4179000m N.
37°45'
122°22'30"
551
25'
554000m E.
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1969
DALY CITY 4 MI
SAN BRUNO 10 MI
(HUNTERS POINT 1559 III NE)
1 MILE
5000
6000
7000 FEET
1 KILOMETER

T
NTOURS

WER LOW WATER
OF MEAN HIGH WATER
Y 4 FEET

RACY STANDARDS
80225, OR WASHINGTON, D. C. 20242
S IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

Figure 52.

SAN FRANCISCO NORTH, CALIF.
N3745—W12222.5/7.5

1956

AMS 1559 IV SW—SERIES V895

69-B

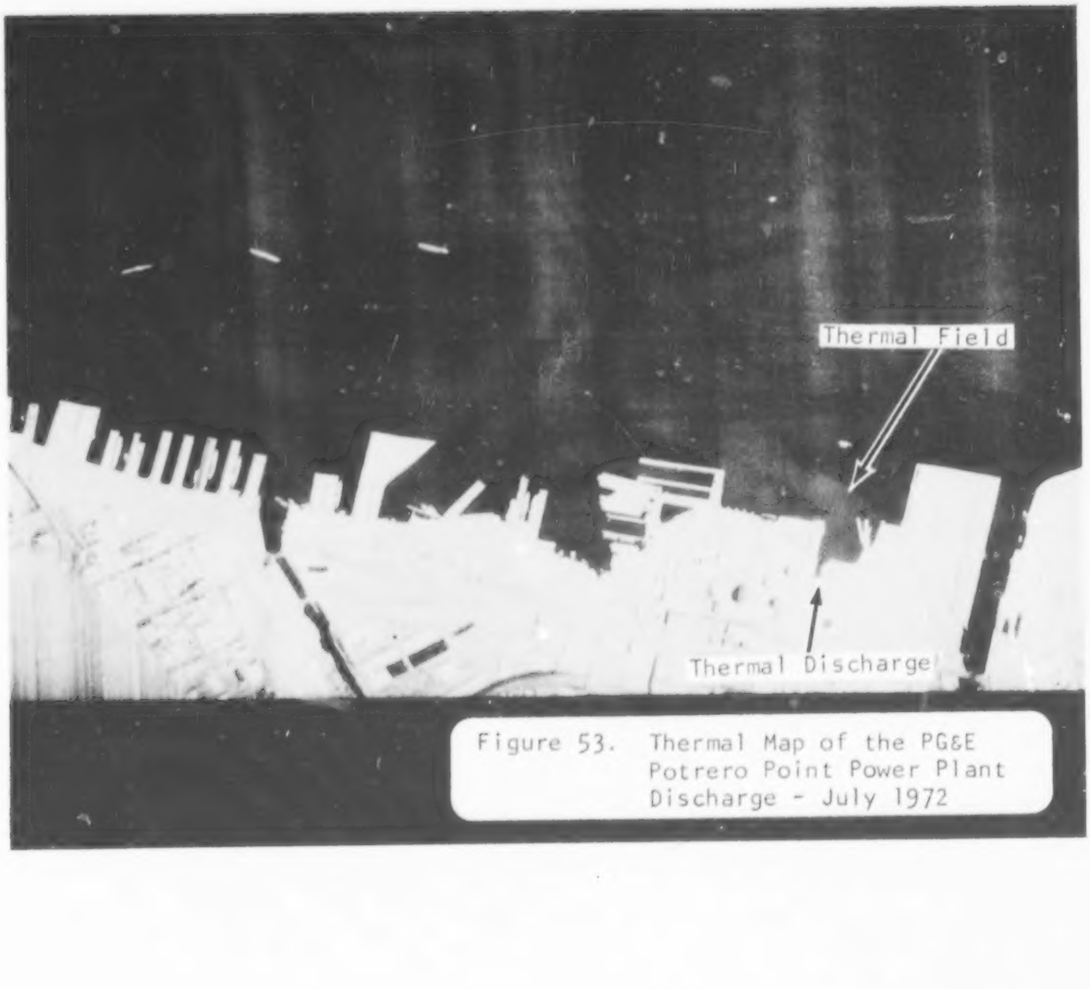

Thermal Field
Thermal Discharge

Figure 53. Thermal Map of the PG&E Potrero Point Power Plant Discharge - July 1972

C-88 April - This outfall was discharging a green colored substance into the Bay waters. It was subsequently floating on the surface.

July - The discharge from this outfall was reddish-brown.

C-89 July - This outfall was discharging a yellow-gray effluent into the apex of the China Basin.

C-90 July - The inherent characteristics of a moderate volume submerged discharge was recorded in this area between Pier 28 and Pier 30. In this particular case, the most significant characteristic was the definite damping of the surface capillary waves. No significant discoloration of the Bay waters in this immediate area was recorded.

C-91 July - The water in this immediate area was displaying a yellowish discoloration. No active outfall was recorded.

C-92 April - This outfall appeared to be inactive at the time of flight. There was a black substance on the water's surface in this immediate area.

July - A yellow colored substance was being discharged from an outfall located just below the water's surface. The surface displayed a tailing or upwelling characteristic at this particular location. There was no subsequent plume or discoloration in the receiving water.

C-93 April - A small active outfall was recorded at this point, between Pier 1 or Pier 3. There was a small gray plume in this area.

C-94 July - A yellow substance appeared to be discharging from a small submerged outfall located between Pier 7 and Pier 9. There was no subsequent plume or discoloration in this area.

C-95 April - The discharges from the San Francisco North Point STP were active at the time of flight. The discharges were adjacent to Pier 33 and Pier 35. They produced a gray-brown discoloration in the receiving Bay waters. The temperature of the discharge on Pier 35 was slightly greater than that of the ambient receiving waters. The flow rate for this facility reportedly was 242.62 Kcmd (664.1 mgd).

July - Both outfalls were prominent at the time of flight. The temperature of the discharge from Pier 35 was slightly warmer than the ambient temperature of the Bay waters. This is shown in Figure 54. They were producing a quite prominent gray-brown discoloration in the receiving waters. The resultant plumes are shown in Figure 55.

"July Night" - The temperature of the discharged wastewater was somewhat cooler than that of the receiving Bay waters. This is seen in Figure 56.

C-96 April - This particular location showed characteristics of being a probable discharge. No noticeable discoloration of the water in this Park area was recorded.

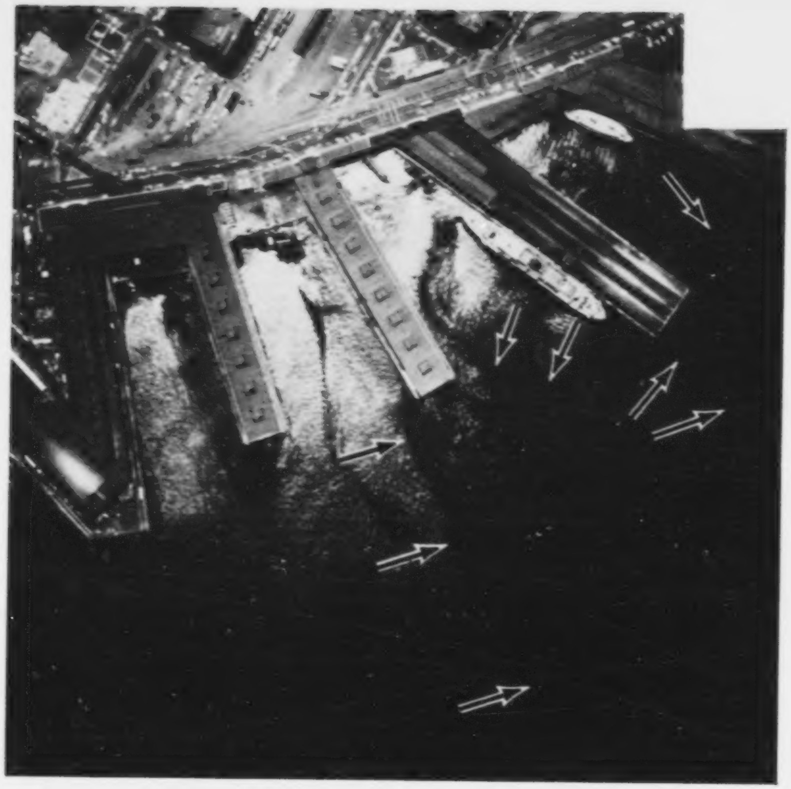
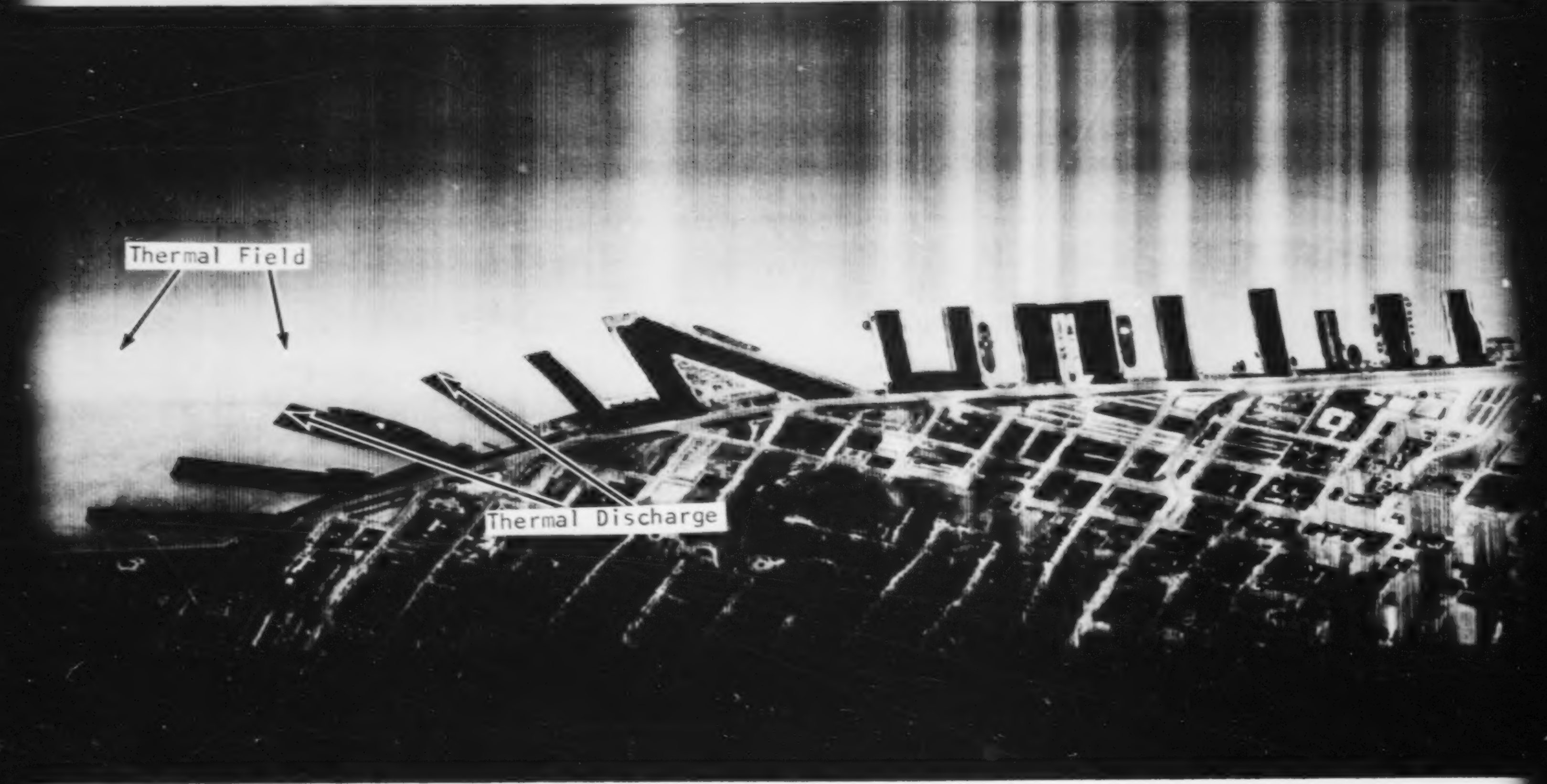


Figure 55. Photograph of the San Francisco North Point STP Discharge Plumes - July 1972

Thermal Field


Thermal Field
Thermal Discharge

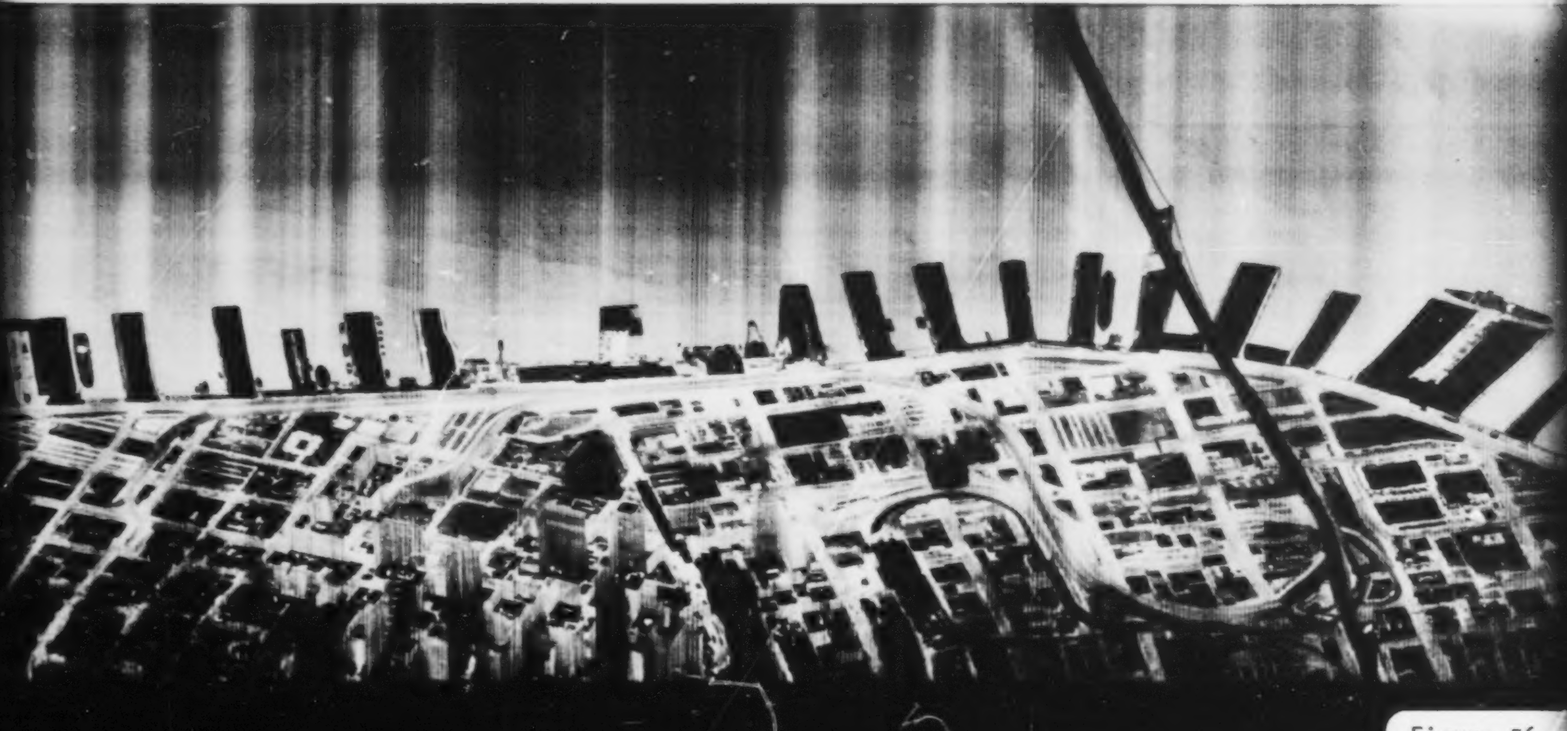


Figure 56.

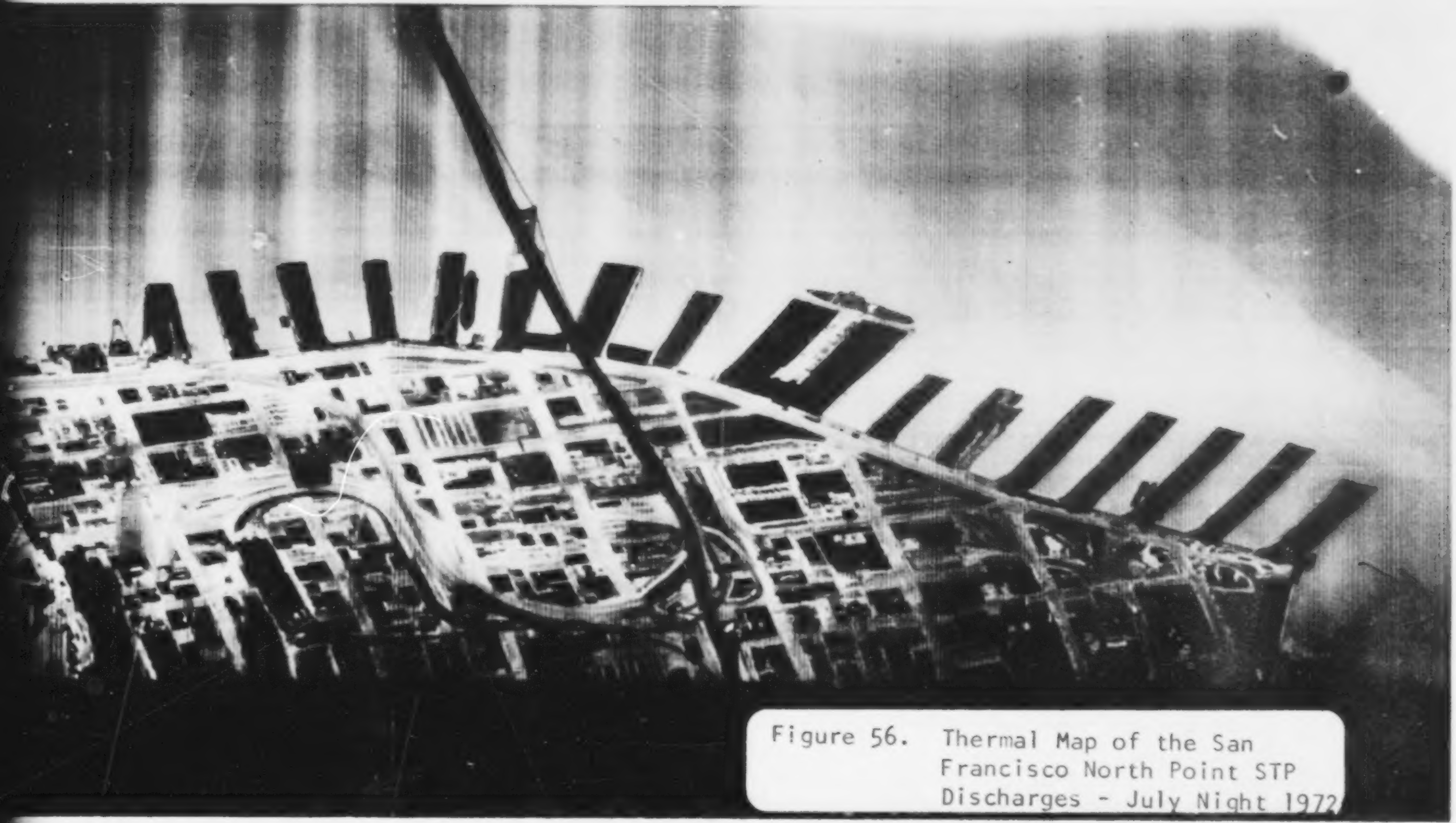


Figure 56. Thermal Map of the San Francisco North Point STP Discharges - July Night 1972

C-97	April -	There was an outfall present at this location, discharging a black substance giving rise to a moderately large dark plume. The dispersion of this plume appeared to be quite slow.
C-98	July -	The South Bay water in this immediate area was quite dark in color. It appeared to originate from a shore line discharge, as shown in red on Figure 52. There was also a matrix of ponds at this location.
C-99	July -	This particular point could possibly be that of a periodic discharge, as shown in red on Figure 52. It was not active at the time of flight.

SAN FRANCISCO BAY AREA - SECTION D

Section D extends from the San Mateo Bridge southward through Milpitas to San Jose. This area is depicted in Figures 1 and 57. The prominent features of this area are the southern end of San Francisco Bay, Coyote Creek and the large number of salt-water evaporating ponds.

NOTE: Indication numbers D-1 through D-3 appear on Figure 58, the Redwood Point map.

D-1 April - There was a grayish-brown discoloration in this flood control channel. There was no outflow from the channel into San Francisco Bay at the time the imagery was recorded.

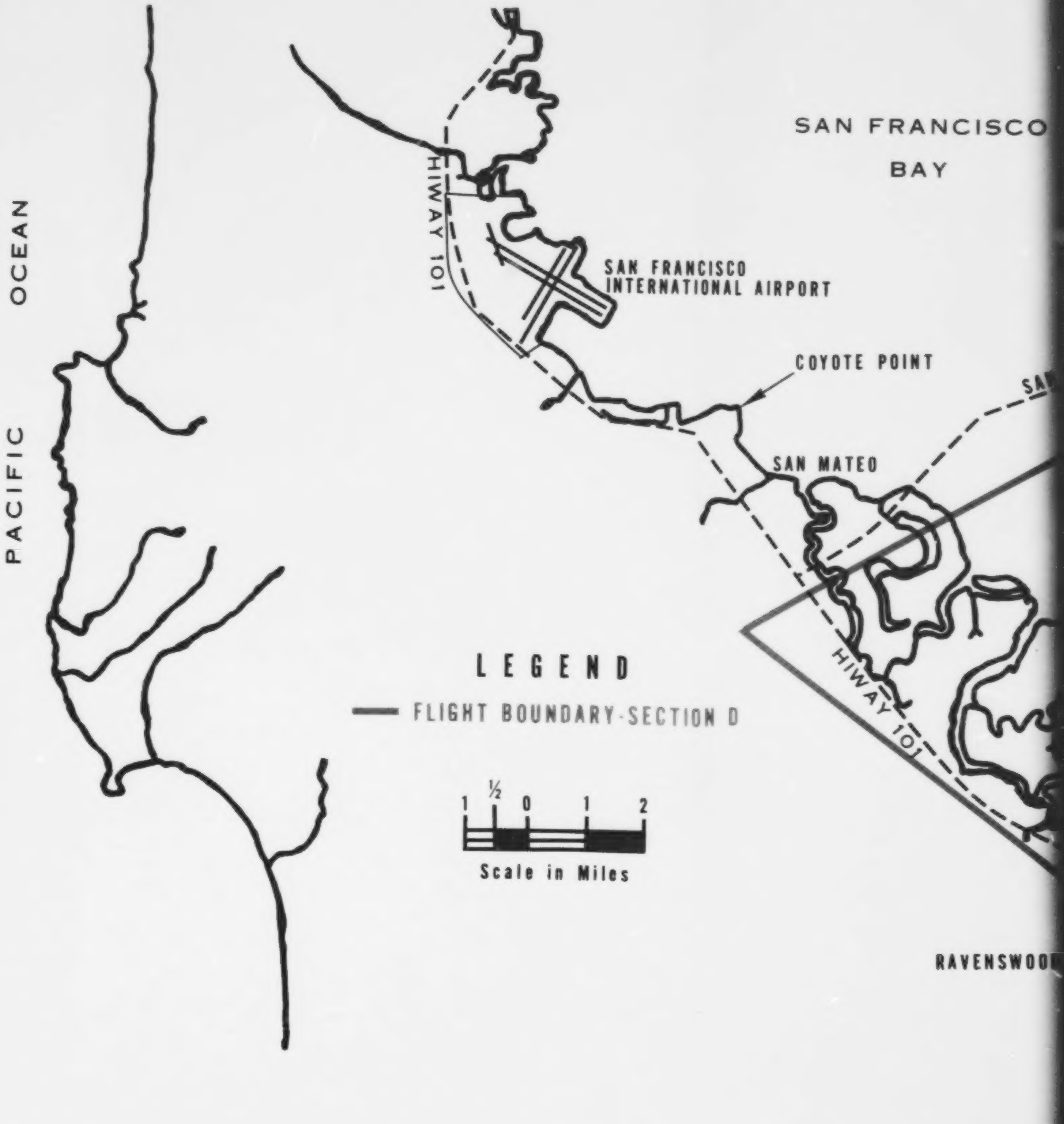
D-2 April - A brown colored outflow from this waterway was entering the Bay but a measureable plume was not created.

D-3 April - A gray-brown outflow from Coyote Slough into San Francisco Bay was seen but the reflection of sunlight from the capillary waves on the Bay prevented measurement of any plume.

NOTE: Indication number D-4 appears on Figure 59, the Newark map

D-4 July - The outfall from the Union SD No. 1, Newark STP was recorded at this point. It produced no visible discoloration in the Newark Slough. The discharge rate for this facility reportedly was 20.44 Kcmd (5.4 mgd).

73-A



SAN FRANCISCO
BAY
PACIFIC OCEAN
HIWAY 101
SAN FRANCISCO INTERNATIONAL AIRPORT
COYOTE POINT
SAN MATEO
HIWAY 101
RAVENSWOO
LEGEND
FLIGHT BOUNDARY-SECTION D
1
½
0
1
2
Scale in Miles

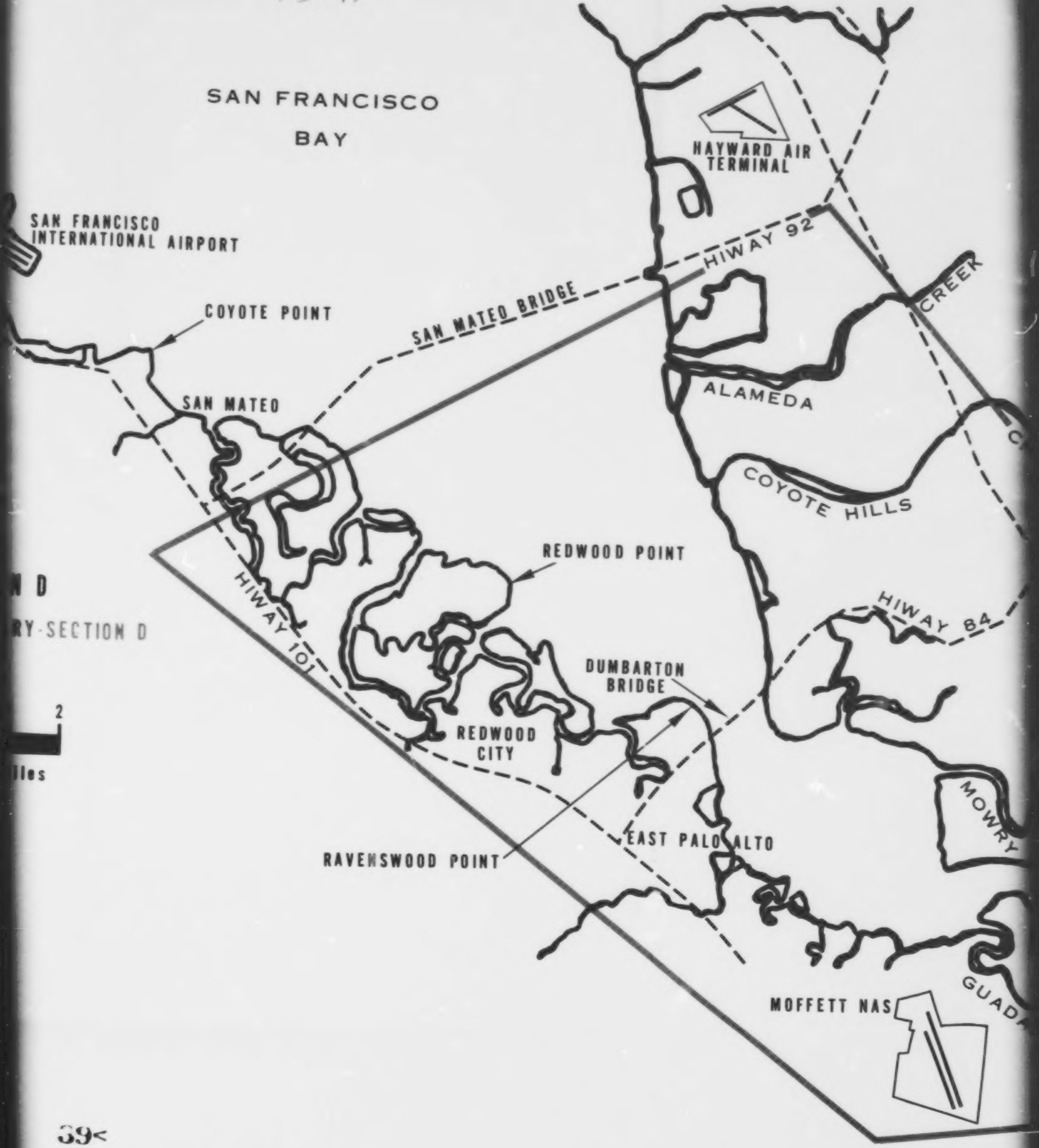
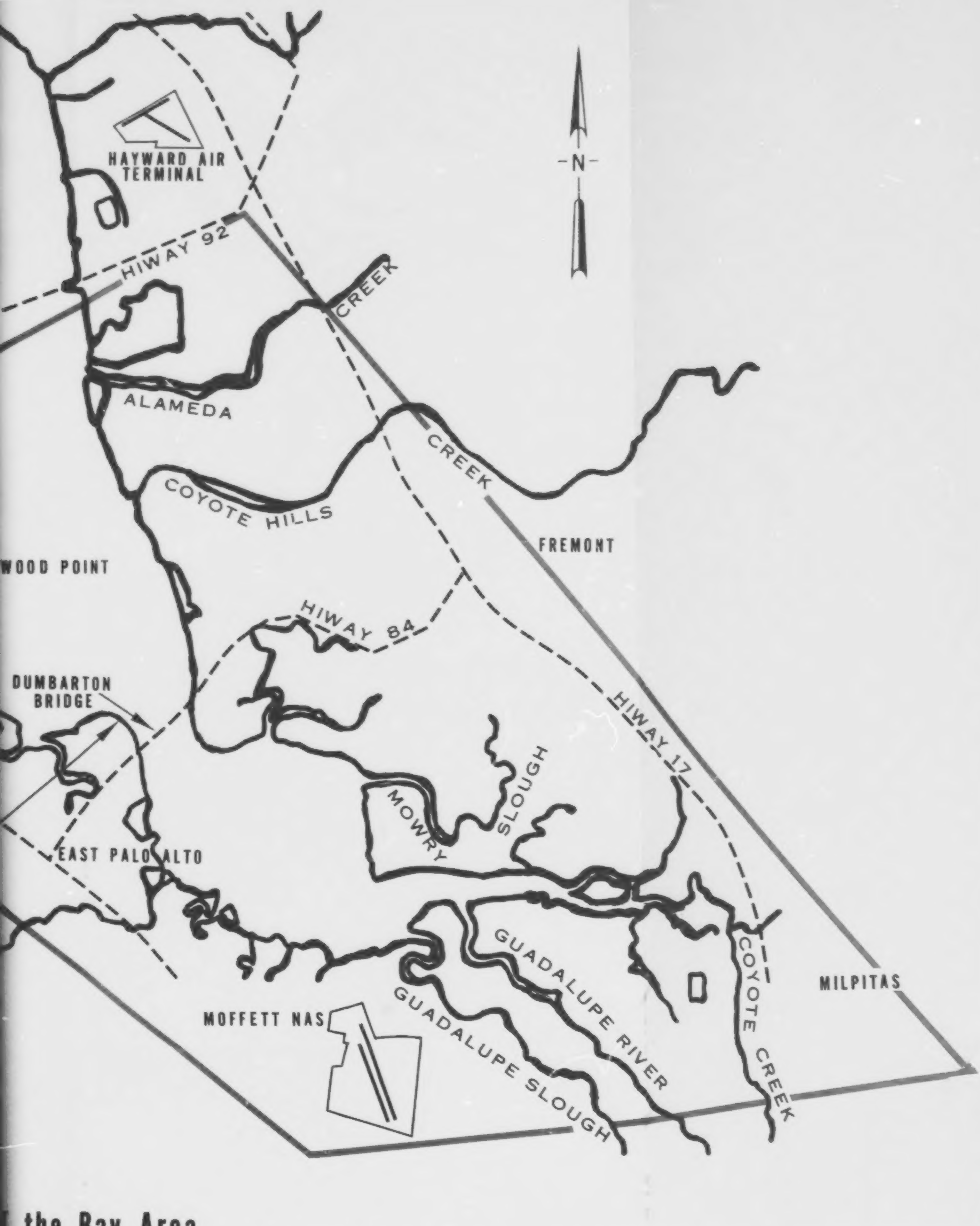

SAN FRANCISCO
BAY
HAYWARD AIR TERMINAL
SAN FRANCISCO INTERNATIONAL AIRPORT
HIWAY 92
SAN MATEO BRIDGE
CREEK
COYOTE POINT
ALAMEDA
SAN MATEO
C
COYOTE HILLS
REDWOOD POINT
N D
RY-SECTION D
HIWAY 101
HIWAY 84
DUMBARTON BRIDGE
2
REDWOOD CITY
iles
MOWRY
EAST PALO ALTO
RAVENSWOOD POINT
GUADA
MOFFETT NAS

Figure 57. Section D of the Bay Area

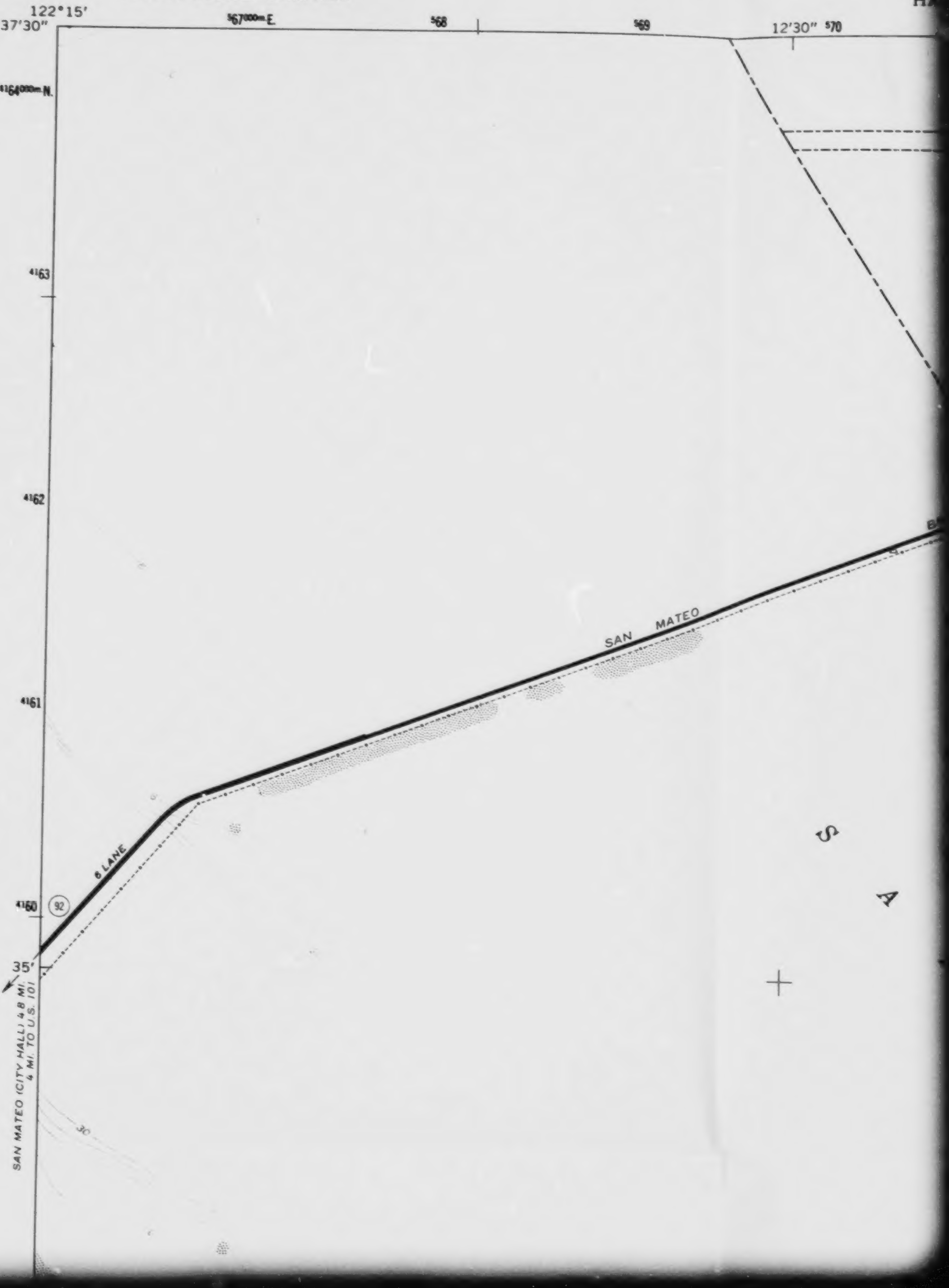


HAYWARD AIR TERMINAL
N
HIWAY 92
CREEK
ALAMEDA
CREEK
COYOTE HILLS
FREMONT
WOOD POINT
HIWAY 84
DUMBARTON BRIDGE
HIWAY 17
MOWRY
SLOUGH
EAST PALO ALTO
GUADALUPE RIVER
GUADALUPE SLOUGH
COYOTE CREEK
MILPITAS
MOFFETT NAS

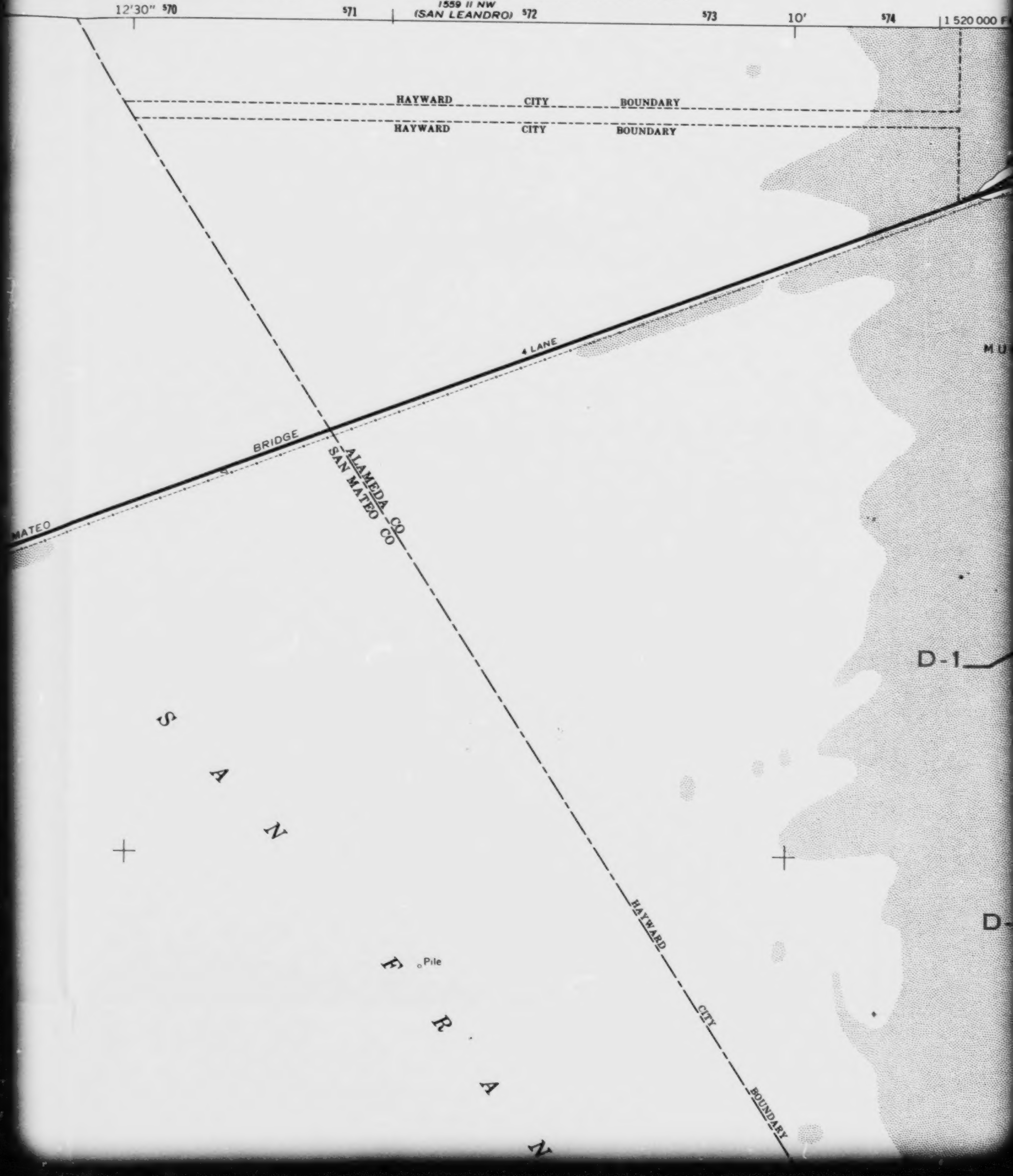
the Bay Area

73-B

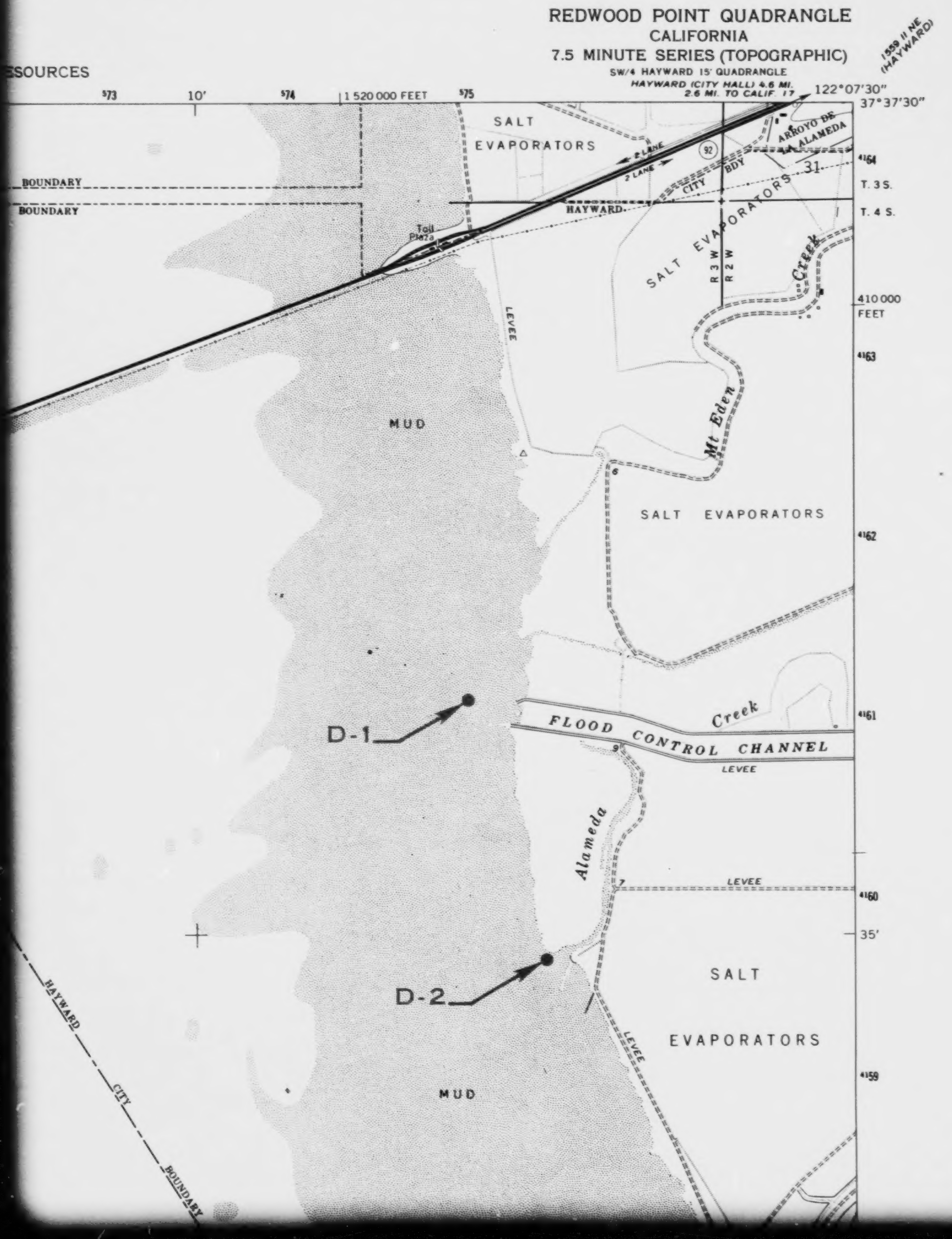
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

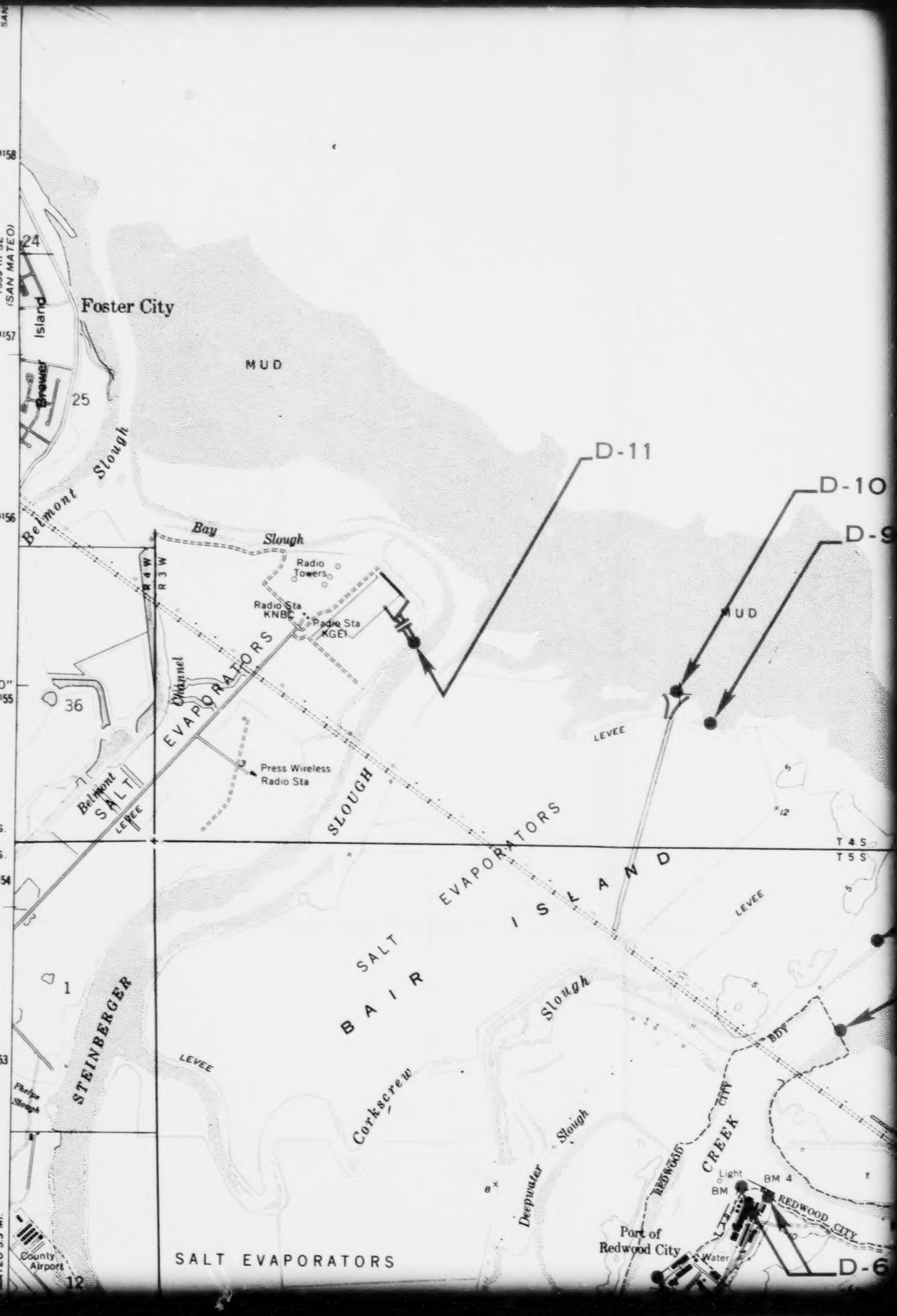

1559 III NE
(HUNTERS POINT)
122°15′
37°37′30″
567000m E.
568
569
12′30″
570
4164000m N.
4163
4162
4161
4160
35′
92
6 LANE
SAN MATEO
S
A
SAN MATEO (CITY HALL) 4.8 MI.
4 MI. TO U.S. 101
30

STATE OF CALIFORNIA
EDMUND G. BROWN, GOVERNOR
HARVEY O. BANKS, DIRECTOR OF WATER RESOURCES

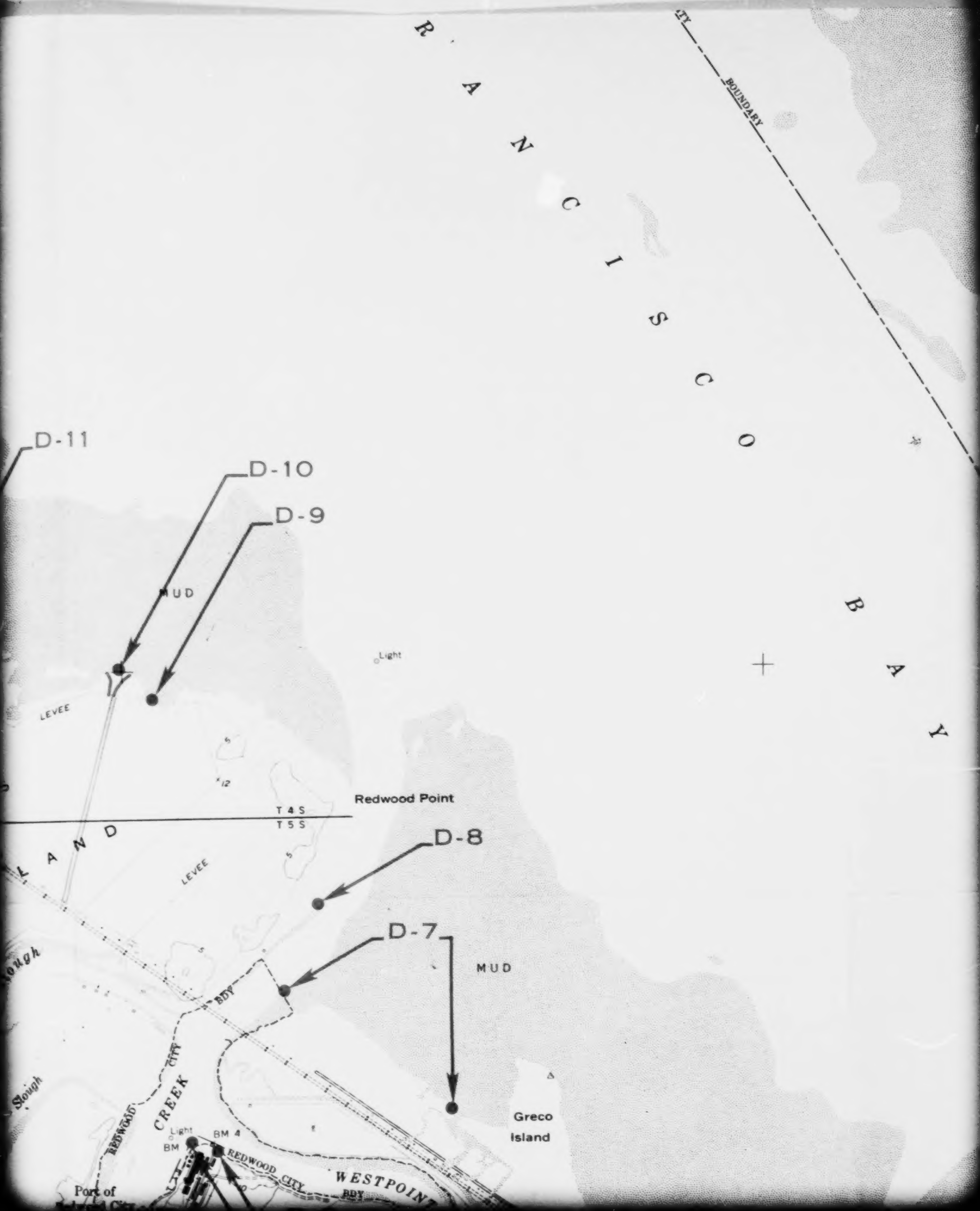


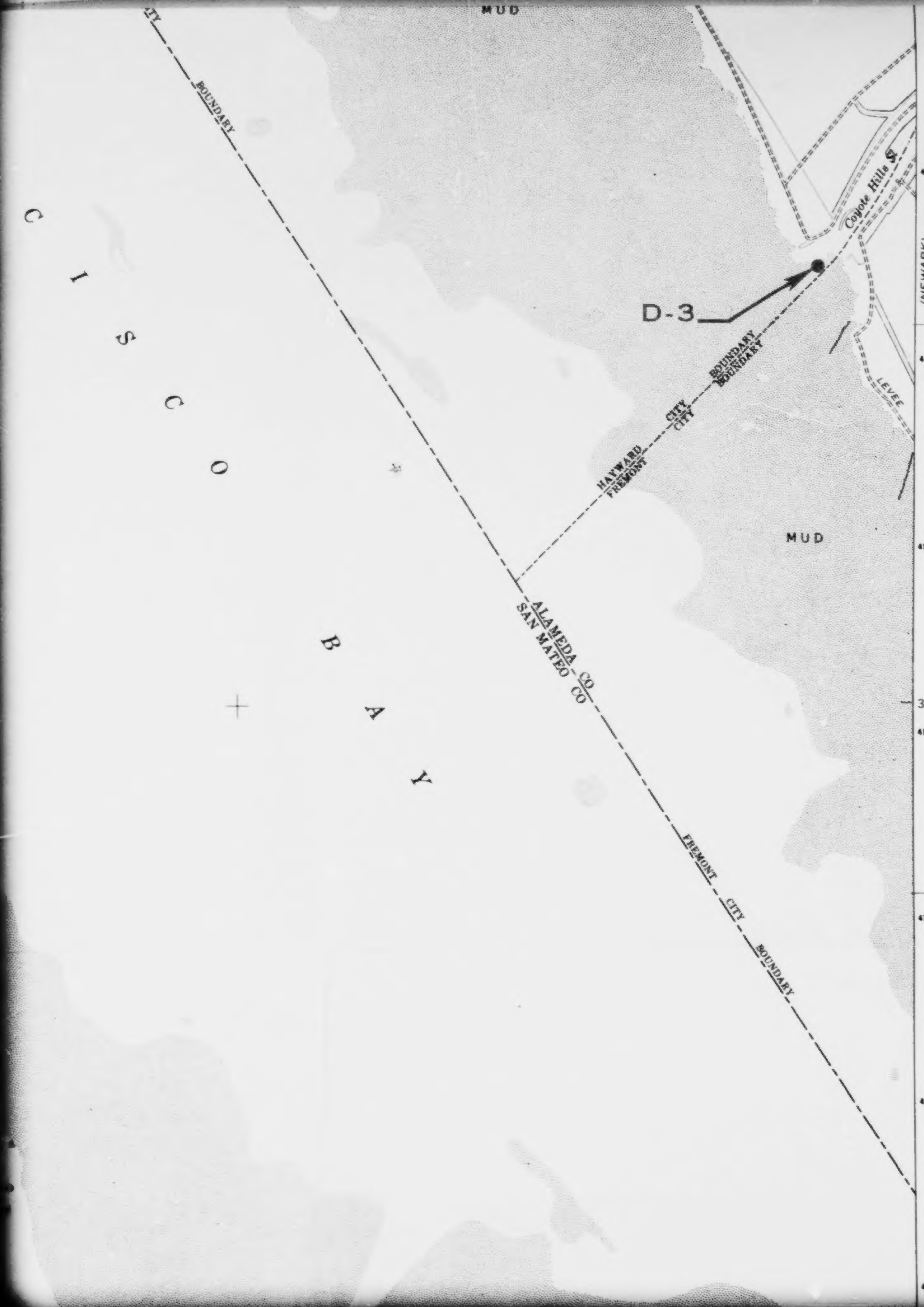
12'30"
570
571
1559 II NW
(SAN LEANDRO)
572
573
10'
574
1 520 000 F
HAYWARD CITY BOUNDARY
HAYWARD CITY BOUNDARY
LANE
BRIDGE
MATEO
ALAMEDA CO
SAN MATEO CO
MU
D-1
D-
S A N F R A N
Pile
HAYWARD CITY BOUNDARY

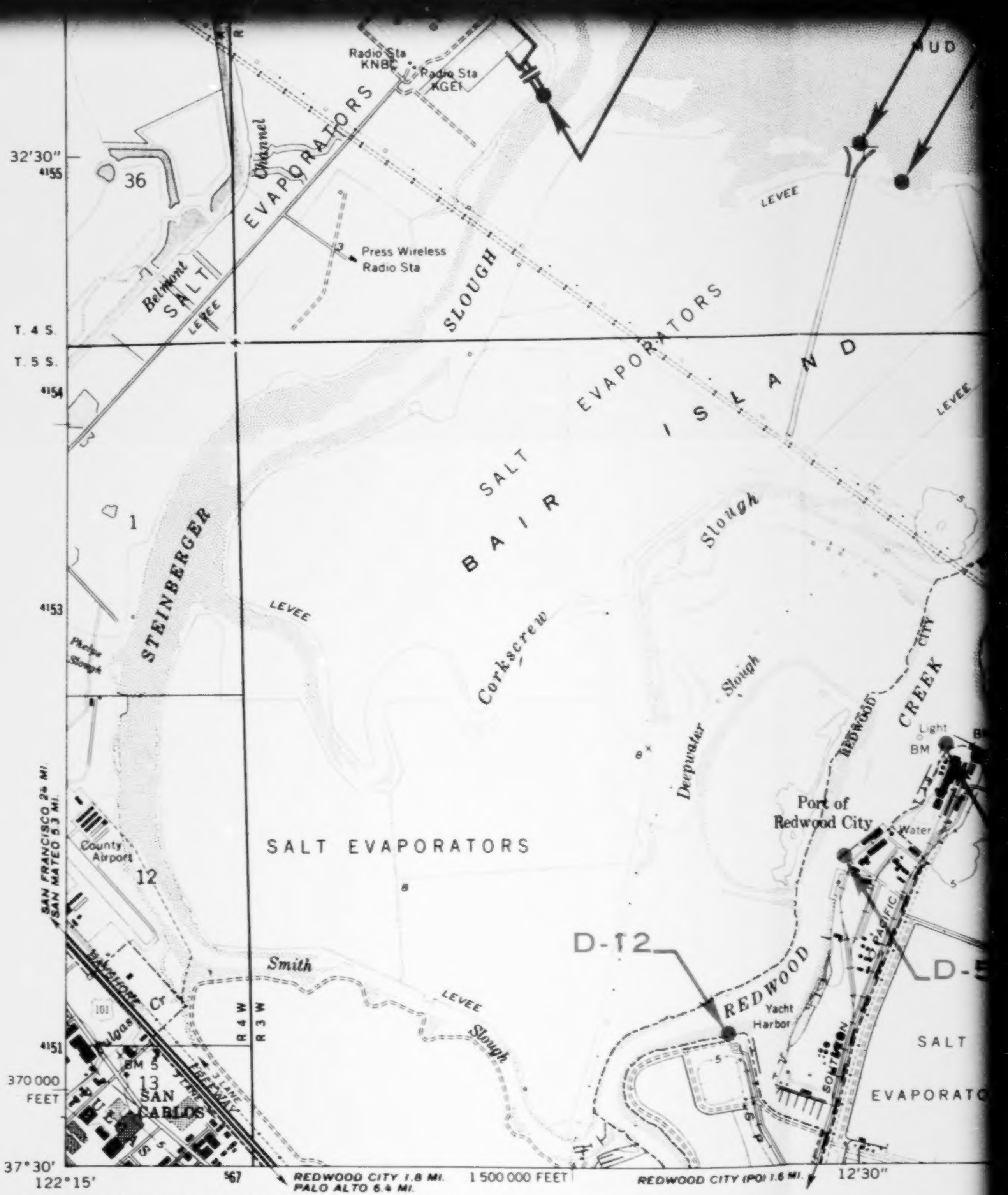

REDWOOD POINT QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 HAYWARD 15' QUADRANGLE
HAYWARD (CITY HALL) 4.6 MI.
2.6 MI. TO CALIF. 17
1559 II NE (HAYWARD)
ESOURCES
573
10'
574
1 520 000 FEET
575
122°07'30"
37°37'30"
SALT EVAPORATORS
ARROYO DE ALAMEDA
2 LANE
2 LANE
92
CITY BDY
HAYWARD
31
4164
T. 3 S.
T. 4 S.
BOUNDARY
BOUNDARY
Toll Plaza
SALT EVAPORATORS
R 3 W
R 2 W
Creek
410 000 FEET
LEVEE
4163
MUD
Mt Eden
6
SALT EVAPORATORS
4162
D-1
FLOOD CONTROL CHANNEL
Creek
9
LEVEE
4161
Alameda
7
LEVEE
4160
35'
D-2
SALT
EVAPORATORS
LEVEE
4159
MUD
HAYWARD CITY BOUNDARY



D-11
D-10
D-9
D-6
Foster City
Brewer Island
MUD
MUD
24
25
36
1
12
Belmont Slough
Bay Slough
Radio Towers
Radio Sta KNBC
Radio Sta KGEI
Press Wireless Radio Sta
Channel
EVAPORATORS
Belmont SALT
LEVEE
SLOUGH
SALT EVAPORATORS
BAIR ISLAND
SALT EVAPORATORS
LEVEE
LEVEE
LEVEE
LEVEE
Slough
Corkscrew
Deepwater Slough
STEINBERGER
Phelps Slough
County Airport
SALT EVAPORATORS
Port of Redwood City
Water
Light
BM
BM 4
REDWOOD CREEK
REDWOOD CITY
CITY BDY
R 4 W
R 3 W
T. 4 S.
T. 5 S.
T 4 S
T 5 S
32'30"
4158
4157
4156
4155
4154
4153
1559 III SE (SAN MATEO)
FRANCISCO 24 MI.
MATEO 5.3 MI.
12
5
5
5
8


R A N C I S C O
B A Y
BOUNDARY
D-11
D-10
D-9
MUD
Light
LEVEE
Redwood Point
T 4 S
T 5 S
L A N D
LEVEE
D-8
D-7
MUD
BDY
Slough
Slough
CITY
CREEK
REDWOOD
Light
BM
BM 4
REDWOOD CITY
WESTPOINT
BDY
Greco
Island
Port of


MUD
ITY
BOUNDARY
C I S C O
B A Y
Coyote Hills Sl
D-3
HAYWARD
FREMONT
CITY
CITY
BOUNDARY
BOUNDARY
LEVEE
(NEWARK)
1559 II SE
4158
4157
4156
MUD
ALAMEDA CO
SAN MATEO CO
32'30"
4155
FREMONT
CITY
BOUNDARY
4154
4153
4152000m.N.


MUD
Radio Sta KNBC
Radio Sta KGEI
32'30"
4155
36
Channel
EVAPORATORS
Press Wireless Radio Sta
LEVEE
Belmont
SALT
SLOUGH
T. 4 S.
T. 5 S.
4154
SALT EVAPORATORS
ISLAND
BAIR
LEVEE
1
STEINBERGER
Slough
Phelps Slough
4153
Corkscrew
Deepwater
CITY
CREEK
REDWOOD
Light
BM
Port of Redwood City
Water
SAN FRANCISCO 2¾ MI.
SAN MATEO 5.3 MI.
County Airport
12
SALT EVAPORATORS
D-12
D-5
Smith
LEVEE
Slough
REDWOOD
Yacht Harbor
PACIFIC
SOUTHERN
SALT
EVAPORATO
R 4 W
R 3 W
101
Cr
4151
BM 5
13
370 000 FEET
SAN CARLOS
FREEWAY
37°30'
122°15'
567
REDWOOD CITY 1.8 MI.
PALO ALTO 6.4 MI.
1 500 000 FEET
REDWOOD CITY (PO) 1.6 MI.
12'30"
(WOODSIDE)
1558 IV NE

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by planetable surveys 1946
Revised from aerial photographs taken 1958. Field check 1959

Hydrography compiled from USC&GS chart 5531 (1956)

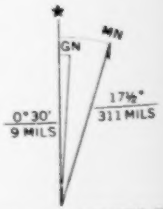
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks,
zone 10, shown in blue

Unchecked elevations are shown in brown

Land lines unsurveyed in Ts. 4 and 5 S.–Rs. 2 and 3 W.

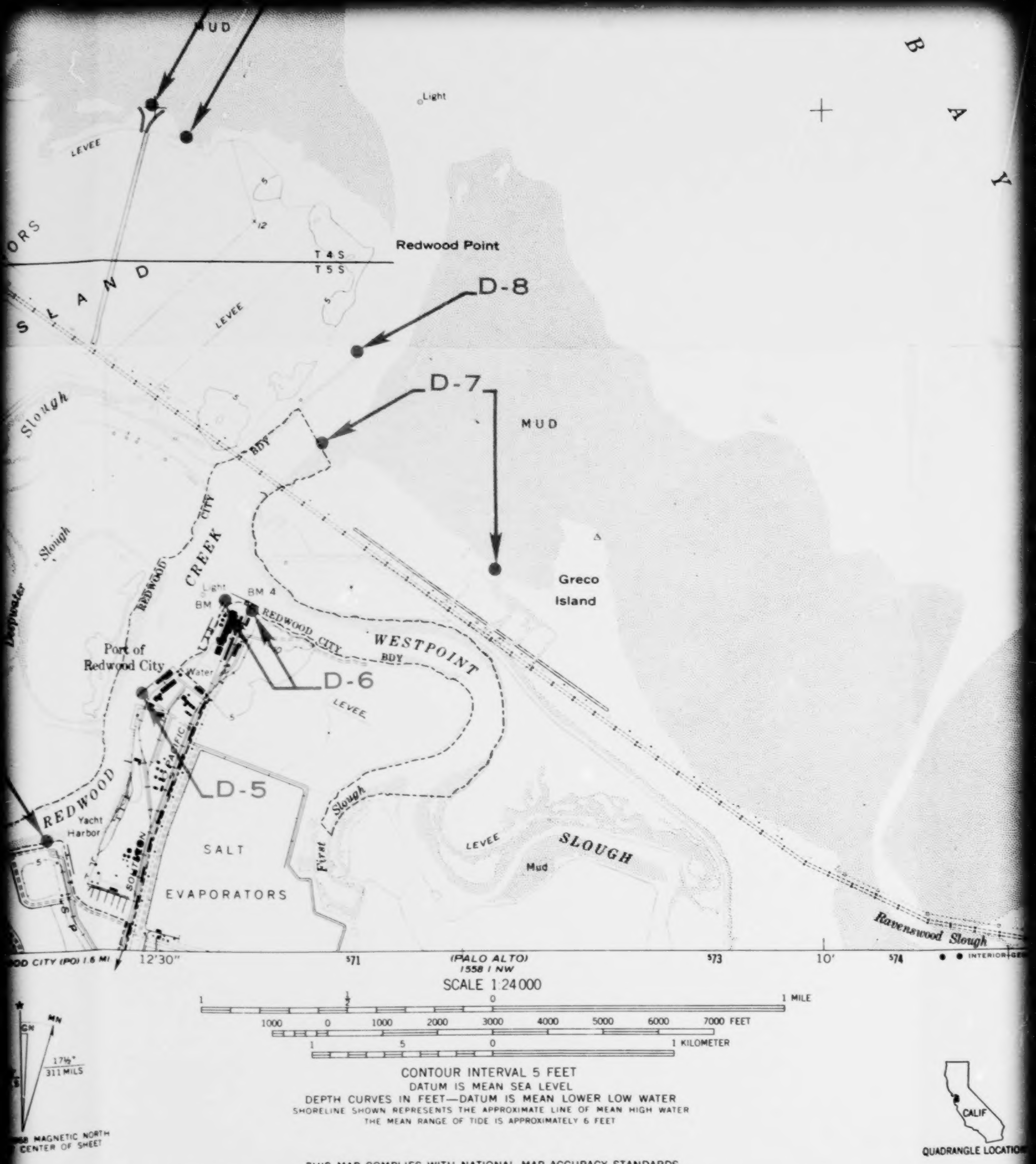
Data shown in purple compiled from aerial photographs
taken 1968. This information not field checked

Purple tint indicates extension of urban areas


★
GN
MN
0°30'
9 MILS
17½°
311 MILS

UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

FOR SALE BY
A F


MUD
B A Y
Light
LEVEE
ORS
Redwood Point
T 4 S
T 5 S
S L A N D
LEVEE
D-8
D-7
MUD
Slough
BDY
CITY
Slough
CREEK
REDWOOD
Deepwater
Light
BM
BM 4
REDWOOD CITY
WESTPOINT
BDY
Greco
Island
Port of
Redwood City
Water
D-6
LEVEE
PACIFIC
D-5
REDWOOD
Yacht
Harbor
First Slough
SALT
EVAPORATORS
LEVEE
SLOUGH
Mud
Ravenswood Slough
OOD CITY (PO) 1.6 MI
12'30"
571
(PALO ALTO)
1558 I NW
573
10'
574
INTERIOR-GE
SCALE 1:24 000
1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
.5
0
1 KILOMETER
GN
MN
17½°
311 MILS
968 MAGNETIC NORTH
CENTER OF SHEET
CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 6 FEET
CALIF
QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242

A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

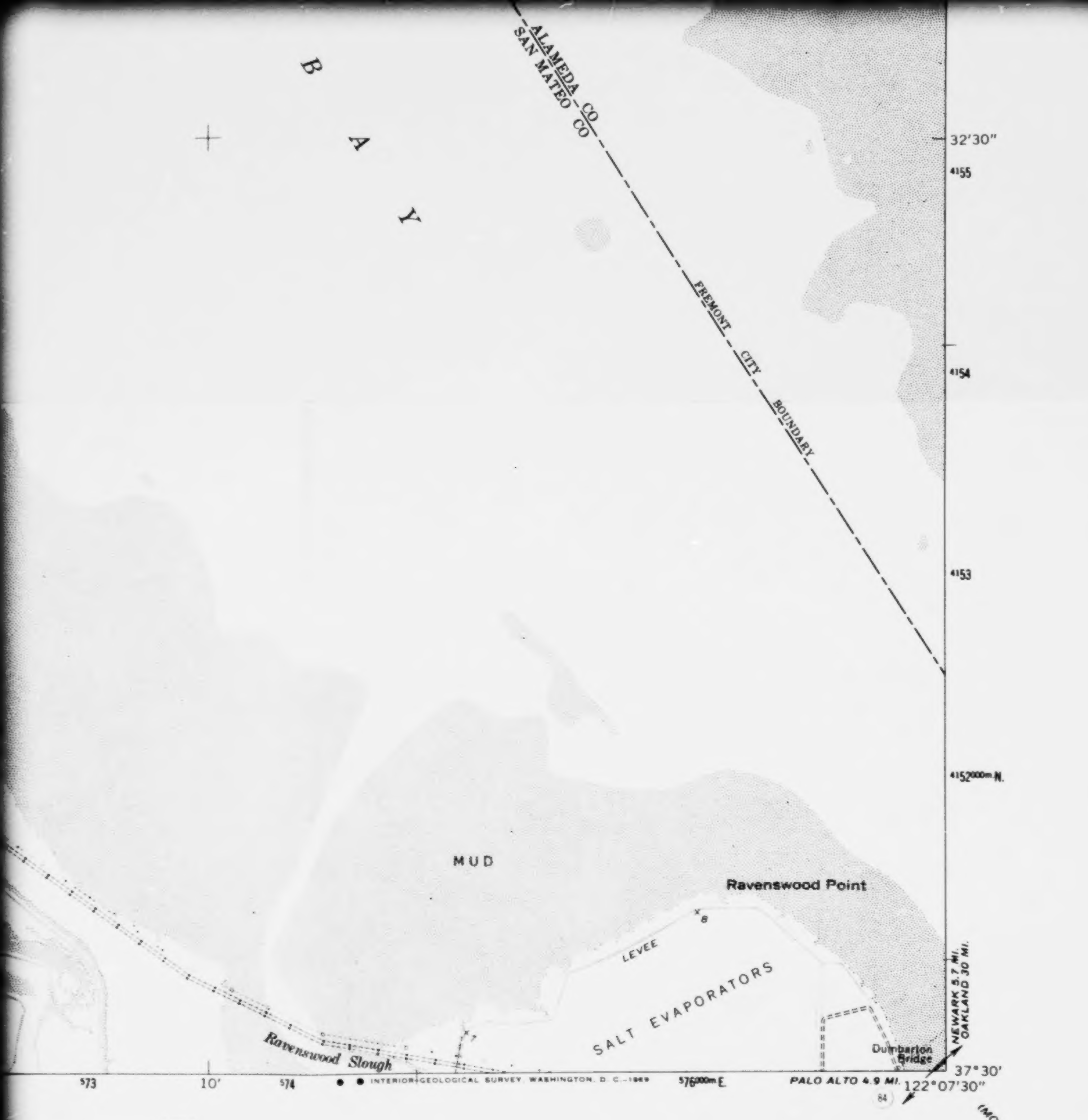

B A Y
ALAMEDA CO
SAN MATEO CO
FREMONT CITY BOUNDARY
32'30"
4155
4154
4153
4152000m N.
MUD
Ravenswood Point
x 8
LEVEE
SALT EVAPORATORS
Ravenswood Slough
Dumbarton Bridge
NEWARK 5.7 MI.
OAKLAND 30 MI.
37°30'
122°07'30"
573
10'
574
576000m E.
PALO ALTO 4.9 MI.
84
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1969
(MOUNTAIN VIEW)
1558 I NE
1 MILE
6000
7000 FEET
1 KILOMETER
VATER
H WATER

Figure 58.

QUADRANGLE LOCATION

ARDS
WASHINGTON, D. C. 20242
BLE ON REQUEST

40<

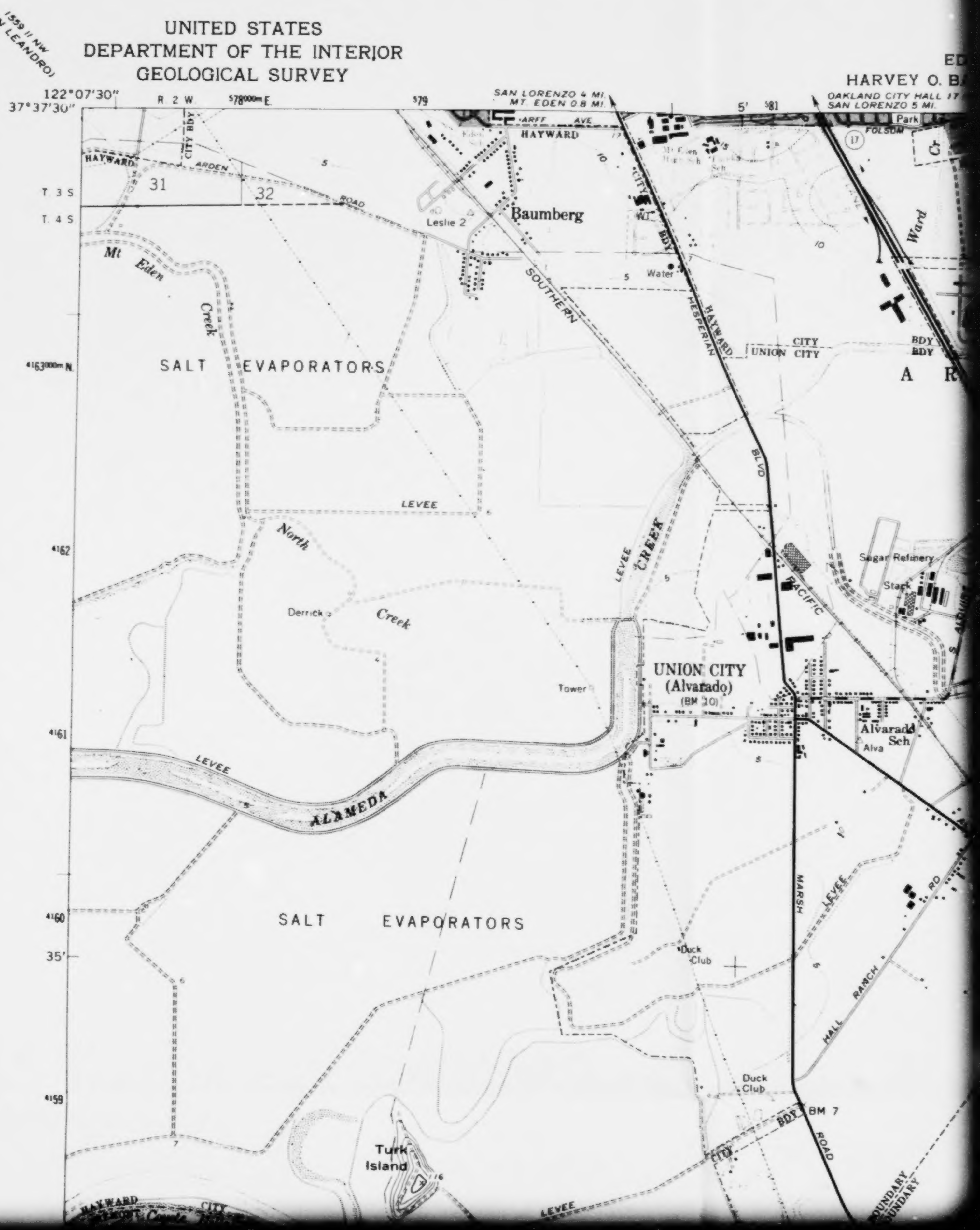
REDWOOD POINT, CALIF.
SW/4 HAYWARD 15' QUADRANGLE
N3730—W12207.5/7.5

1959
PHOTOREVISED 1968
AMS 1559 II SW—SERIES V895

7

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

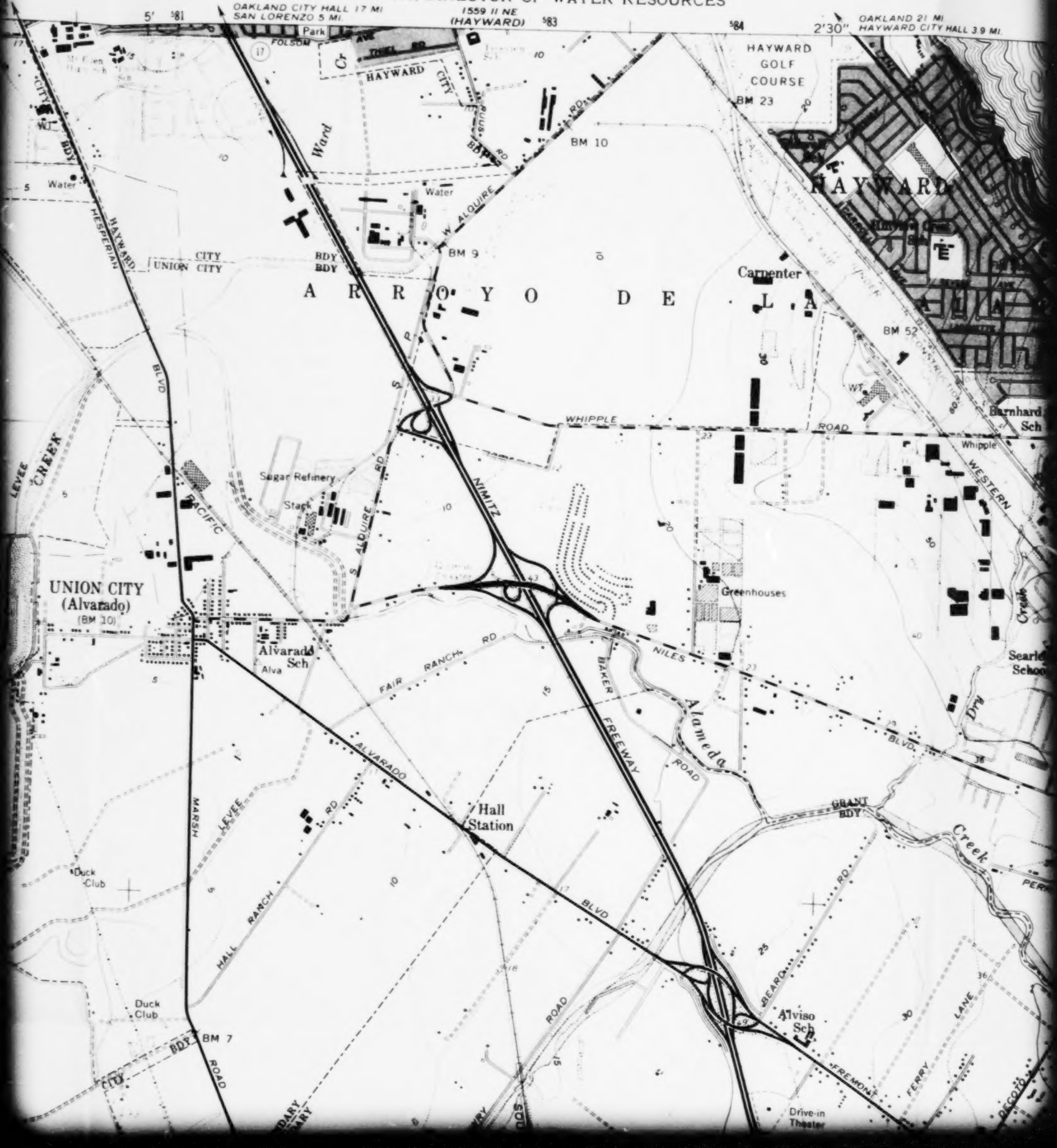
ED
HARVEY O. B



1559 II NW
(SAN LEANDRO)
122°07'30"
37°37'30"
R. 2 W.
578000m E.
579
SAN LORENZO 4 MI.
MT. EDEN 0.8 MI.
5'
581
OAKLAND CITY HALL 17
SAN LORENZO 5 MI.
ARFF AVE
HAYWARD
Park
FOLSOM
17
Mt Eden
Eden Sch
Mt Eden Hi Sch
Eureka Sch
CITY BDY
HAYWARD
ARDEN
ROAD
31
32
T. 3 S.
T. 4 S.
Baumberg
Leslie 2
Ward
LANE
Cr
Mt Eden Creek
SOUTHERN
PACIFIC
Water
HESPERIAN
HAYWARD
BLVD
CITY
UNION CITY
BDY
4163000m N.
SALT EVAPORATORS
A
LEVEE
4162
North Creek
Derrick
LEVEE
CREEK
Sugar Refinery
Stack
4161
Tower
UNION CITY
(Alvarado)
(BM 10)
Alvarado Sch
Alva
LEVEE
ALAMEDA
4160
35'
SALT EVAPORATORS
MARSH
LEVEE
HALL RANCH
RD
Duck Club
4159
Duck Club
BM 7
CITY BDY
ROAD
Turk Island
HAYWARD
CITY
Coyote Hills
LEVEE
BOUNDARY
BOUNDARY

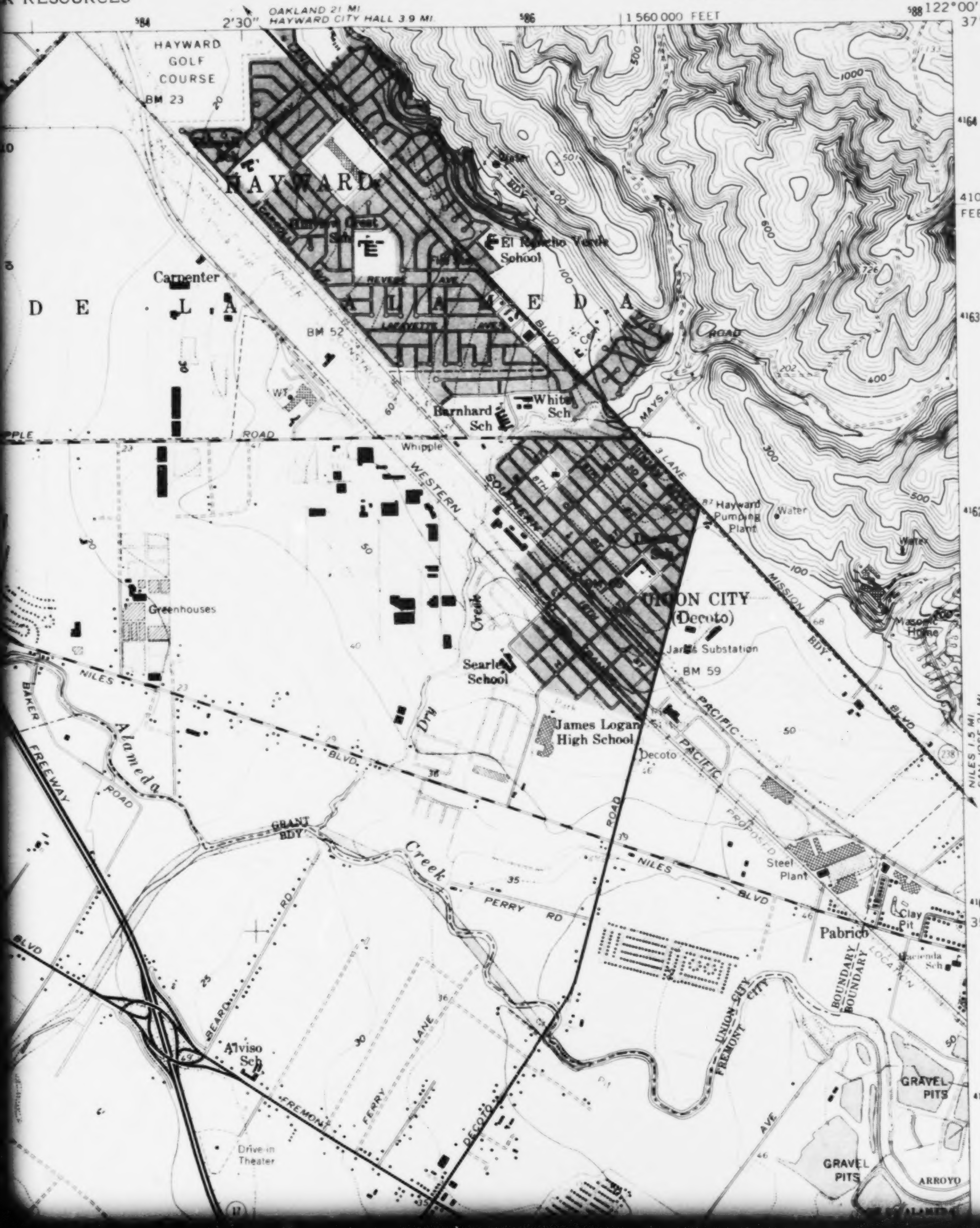
73-C

STATE OF CALIFORNIA
EDMUND G. BROWN, GOVERNOR
HARVEY O. BANKS, DIRECTOR OF WATER RESOURCES

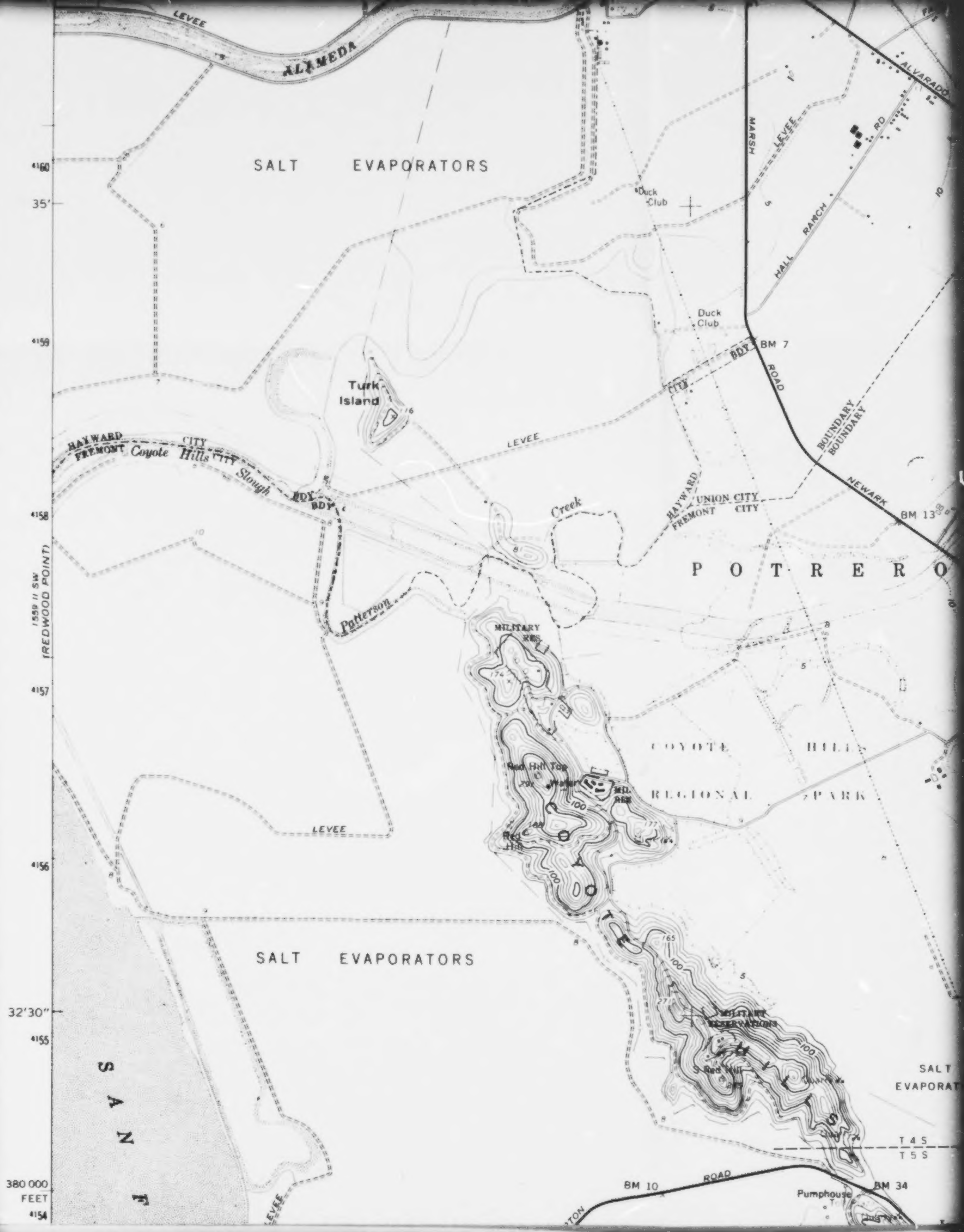

OAKLAND CITY HALL 17 MI
SAN LORENZO 5 MI.
1559 II NE
(HAYWARD)
OAKLAND 21 MI
HAYWARD CITY HALL 3.9 MI.
5'
581
583
584
2'30"
Park
FOLSOM
HAYWARD
CITY
HAYWARD GOLF COURSE
BM 23
BM 10
Ward
Water
W. ALQUIRE
BM 9
HAYWARD
HESPERIAN
BLVD
CITY BDY
UNION CITY
ARROYO DE LA
Carpenter
BM 52
WHIPPLE
ROAD
Whipple
WESTERN
Barnhard Sch
NIMITZ
Sugar Refinery
Stack
PACIFIC
ALQUIRE RD
LEVEE
CREEK
UNION CITY
(Alvarado)
(BM 10)
Alvarado Sch
Alva
Greenhouses
NILES
BLVD
FAIR RANCH RD
BAKER
FREEWAY
Alameda
ROAD
Searle School
Dry Creek
ALVARADO
BLVD
RD
Hall Station
MARSH
LEVEE
HALL RANCH
GRANT BDY
Creek
Duck Club
Duck Club
BM 7
ROAD
CITY BDY
BEARD RD
Alviso Sch
FREMONT
FERRY
LANE
DECOTO
Drive-in Theater
BOUNDARY

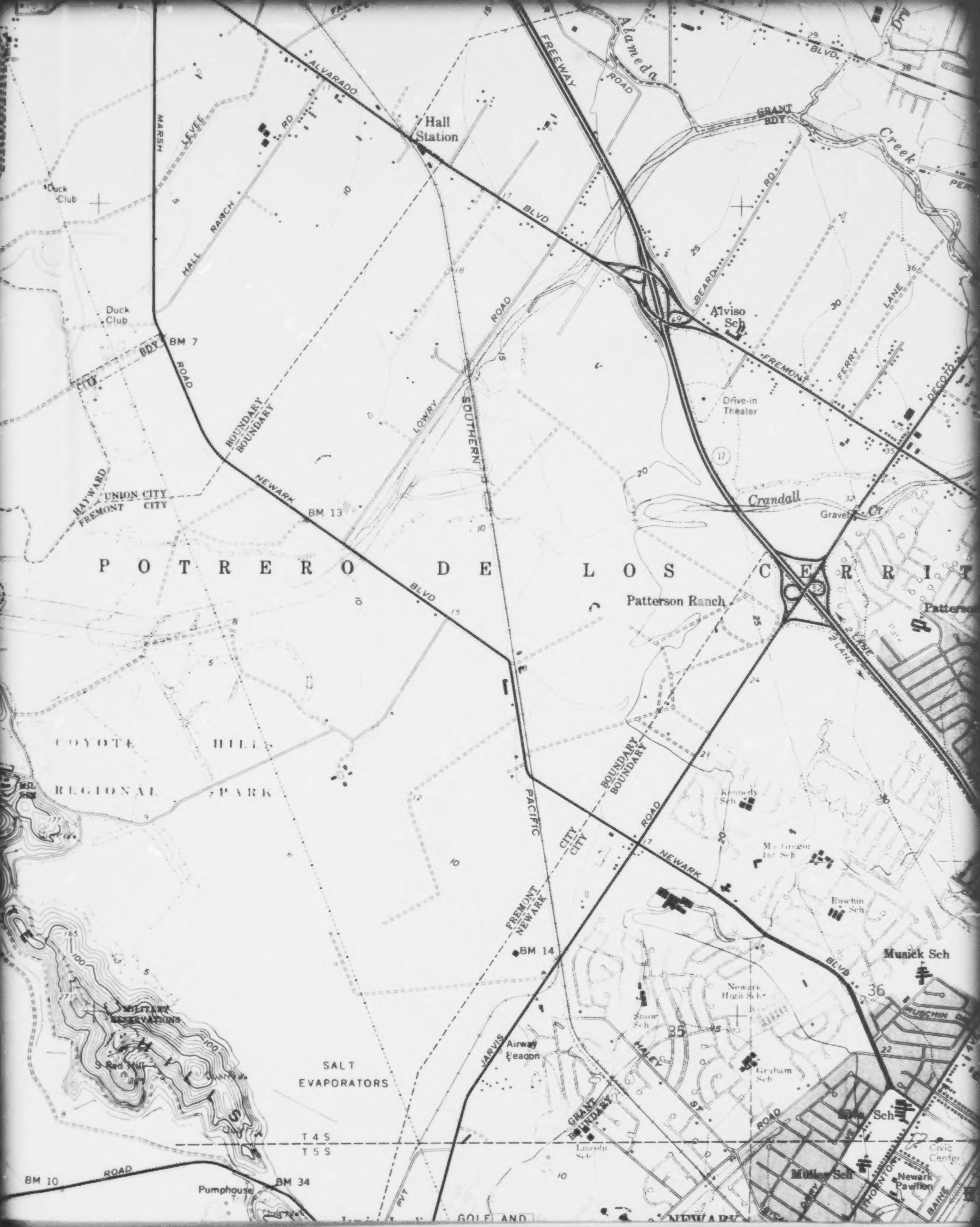
OR
R RESOURCES

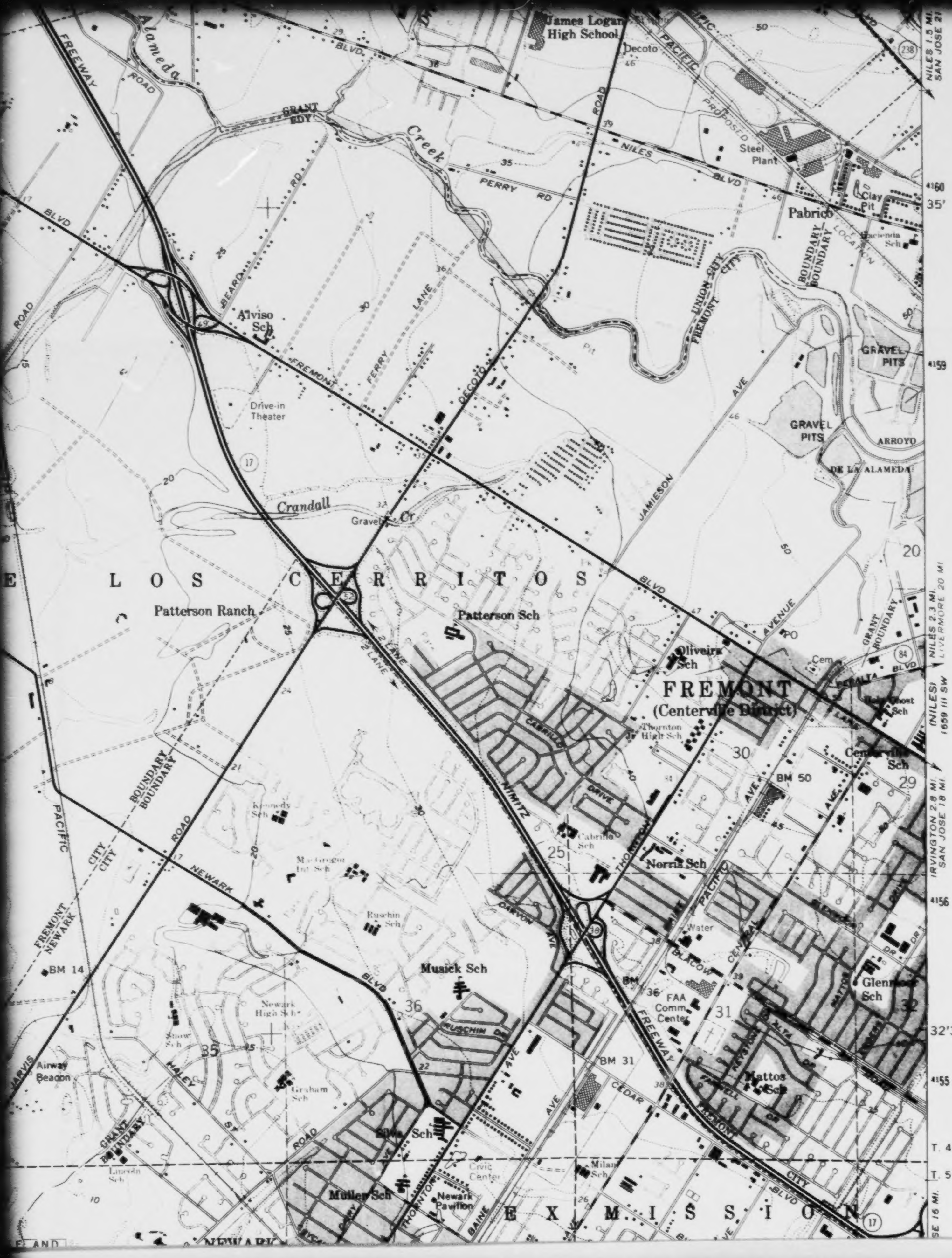
NEWARK QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 HAYWARD 15' QUADRANGLE



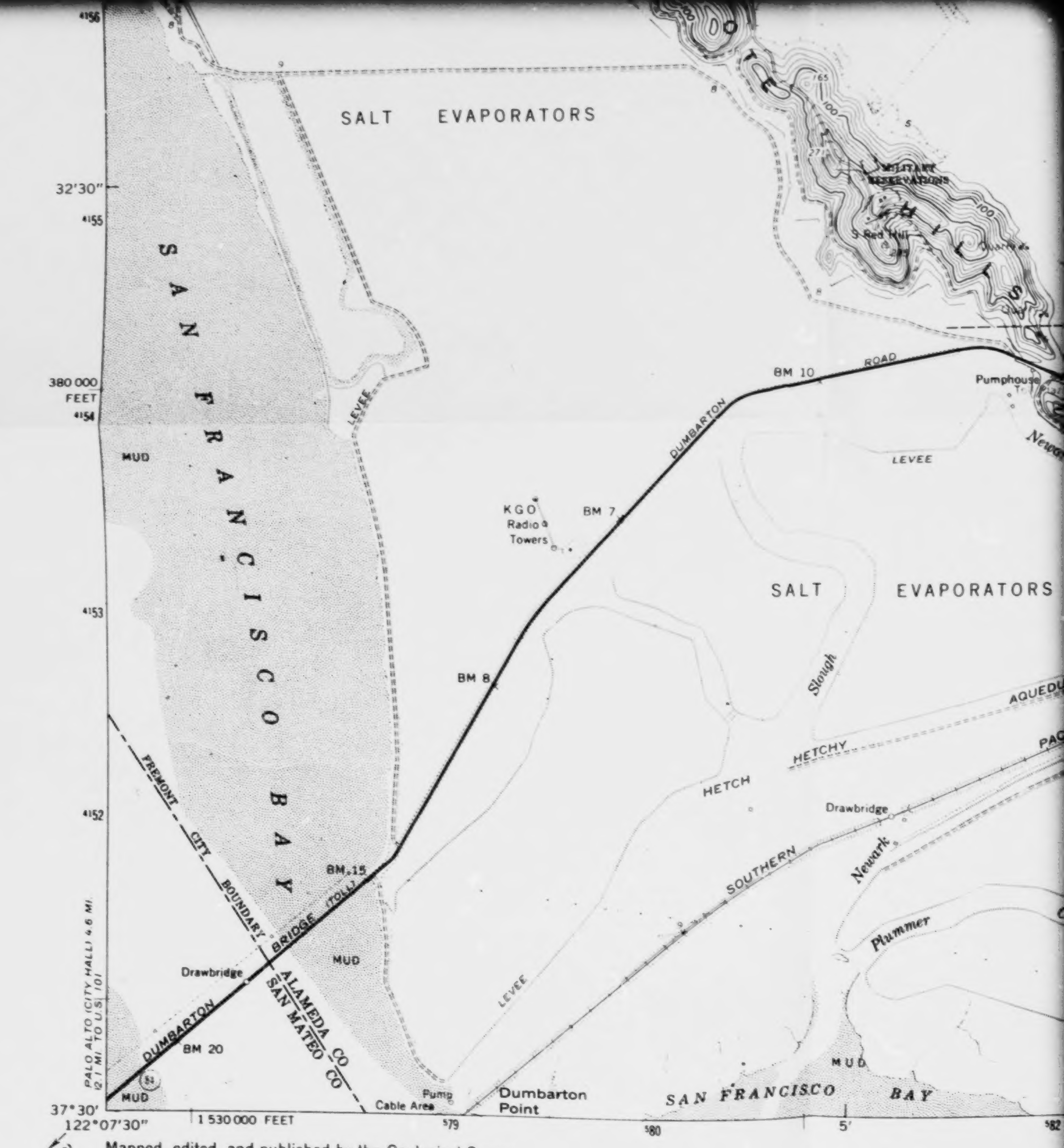
1659 III NW (DUBLIN)
OAKLAND 21 MI.
HAYWARD CITY HALL 3.9 MI.
584
2'30"
586
1 560 000 FEET
588
122°00'
37°37'30"
4164
410 000 FEET
4163
4162
4160
35'
4159
HAYWARD GOLF COURSE
BM 23
HAYWARD
El Rancho Verde School
Carpenter
DE ALAMEDA
BM 52
WT
Barnhard Sch
White Sch
WHIPPLE ROAD
Whipple
WESTERN
SOUTHERN
PACIFIC
MISSION BLVD
MAYS
ROAD
Hayward Pumping Plant
Water
Masonic Home
UNION CITY (Decoto)
James Substation
BM 59
Searles School
James Logan High School
Decoto
Greenhouses
NILES BLVD
BAKER
FREEWAY
Alameda
Creek
GRANT BDY
ROAD
Dry Creek
PERRY RD
Steel Plant
Clay Pit
Pabrico
Hacienda Sch
UNION CITY
FREMONT
BOUNDARY
GRAVEL PITS
ARROYO
ALAMEDA
Alviso Sch
BEARD
RD
FERRY LANE
DECOTO
FREMONT
AVE
Drive-in Theater
NILES 1.5 MI.
SAN JOSE 21 MI.
238
17
500
600
1000
726
400
300
100
50


LEVEE
ALAMEDA
SALT EVAPORATORS
Duck Club
MARSH
LEVEE
ALVARADO
RD
HALL RANCH
Duck Club
BM 7
ROAD
Turk Island
116
HAYWARD CITY
FREMONT Coyote Hills CITY
Slough
BDY
BDY
LEVEE
CITY BDY
BOUNDARY
BOUNDARY
NEWARK
BM 13
HAYWARD
FREMONT
UNION CITY
CITY
Creek
Patterson
POTRERO
MILITARY RES
174
COYOTE HILLS
REGIONAL PARK
Red Hill Top
Water
MIL RES
177
Red Hill
100
LEVEE
SALT EVAPORATORS
165
MILITARY RESERVATIONS
S Red Hill
SALT EVAPORAT
T 4 S
T 5 S
BM 10
ROAD
BM 34
Pumphouse
SAN F
LEVEE
4160
35′
4159
4158
1559 II SW (REDWOOD POINT)
4157
4156
32′30″
4155
380 000 FEET
4154


Hall Station
ALVARADO
BLVD
FREEWAY
Alameda
ROAD
BLVD.
GRANT BDY
Creek
MARSH
LEVEE
RD
HALL RANCH
Duck Club
Duck Club
CITY BDY
BM 7
ROAD
BEARD RD
Alviso Sch
FREMONT
FERRY LANE
DECOTO
Drive-in Theater
LOWRY ROAD
SOUTHERN PACIFIC
BOUNDARY BOUNDARY
NEWARK BLVD
HAYWARD UNION CITY
FREMONT CITY
BM 13
Crandall Cr
Gravel
POTRERO DE LOS CERRIT
Patterson Ranch
2 LANE
2 LANE
COYOTE HILLS REGIONAL PARK
CITY CITY
BOUNDARY BOUNDARY
ROAD
Kennedy Sch
MacGregor Int Sch
Ruschin Sch
FREMONT NEWARK
BM 14
Musick Sch
Newark High Sch
Snow Sch
HALEY ST
Graham Sch
JARVIS
Airway Beacon
MILITARY RESERVATIONS
Red Hill
SALT EVAPORATORS
GRANT BOUNDARY
Lincoln Sch
ROAD
Mulles Sch
THORNTON
Civic Center
Newark Pavilion
BAINE
T 4 S
T 5 S
BM 10
ROAD
BM 34
Pumphouse
GOLF AND
NEWARK
PVT



James Logan High School
Decoto
Alameda
Creek
GRANT BDY
PERRY RD
NILES BLVD
Steel Plant
Clay Pit
Pabrico
Hacienda Sch
UNION CITY
FREMONT
BOUNDARY
GRAVEL PITS
ARROYO
DE LA ALAMEDA
Alviso Sch
Drive-in Theater
FREMONT BLVD
FERRY LANE
DECOTO ROAD
BEARD RD
FREEWAY
Crandall Cr
Gravel
LOS CERRITOS
Patterson Ranch
Patterson Sch
2 LANE
JAMIESON AVE
AVENUE
PO
Cem
Oliveira Sch
FREMONT
(Centerville District)
Thornton Jr High Sch
CABRILLO DRIVE
NIMITZ
Cabrillo Sch
Norris Sch
THORNTON
Centerville Sch
BM 50
Kennedy Sch
MacGregor Int Sch
Ruschin Sch
Musick Sch
NEWARK BLVD
PACIFIC
CITY BOUNDARY
FREMONT NEWARK
BM 14
Newark High Sch
Snow Sch
Airway Beacon
HALEY ST
Graham Sch
GRANT BOUNDARY
Lincoln Sch
Silva Sch
Mulher Sch
Civic Center
Newark Pavilion
Milani Sch
THORNTON
BAINE AVE
DAVENPORT AVE
RUSCHIN DR
BM 31
CEDAR
FAA Comm Center
BM 36
Water
BLACOW
CENTRAL
Glenmoor Sch
Mattos Sch
FREMONT BLVD
CITY
EX MISSION
NEWARK
ALTA
PERALTA BLVD
Holy Ghost Sch
NILES 1.5 MI.
SAN JOSE 21 MI.
NILES 2.3 MI.
LIVERMORE 20 MI.
(NILES)
1659 III SW
IRVINGTON 2.8 MI.
SAN JOSE 18 MI.
SE 16 MI.
4160
35′
4159
4156
32′30″
4155
T. 4 S.
T. 5 S.
20
25
29
30
31
32
35
36
238
84
17
P


SALT EVAPORATORS
SAN FRANCISCO BAY
MUD
LEVEE
MILITARY RESERVATION
Red Hill
DUMBARTON ROAD
BM 10
Pumphouse
Newark
KGO Radio Towers
BM 7
SALT EVAPORATORS
Slough
AQUEDU
HETCHY
HETCH
Drawbridge
SOUTHERN
PAC
BM 8
Plummer
FREMONT CITY BOUNDARY
ALAMEDA CO
SAN MATEO CO
BM 15
DUMBARTON BRIDGE (TOLL)
Drawbridge
BM 20
MUD
Pump
Cable Area
Dumbarton Point
SAN FRANCISCO BAY
PALO ALTO (CITY HALL) 4.6 MI.
2.1 MI. TO U.S. 101
(PALO ALTO) 1558 I NW
4156
32'30"
4155
380 000 FEET
4154
4153
4152
37°30'
122°07'30"
1 530 000 FEET
579
580
5'
582

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

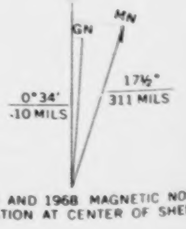
Topography by planetable surveys 1947
Revised from aerial photographs taken 1958. Field check 1959
Hydrography compiled from USC&GS chart 5531 (1956)

Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks,
zone 10, shown in blue

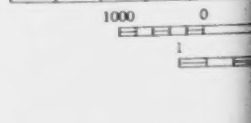
Dashed land lines indicate approximate locations

Red tint indicates areas in which only landmark buildings are shown

Unchecked elevations are shown in brown

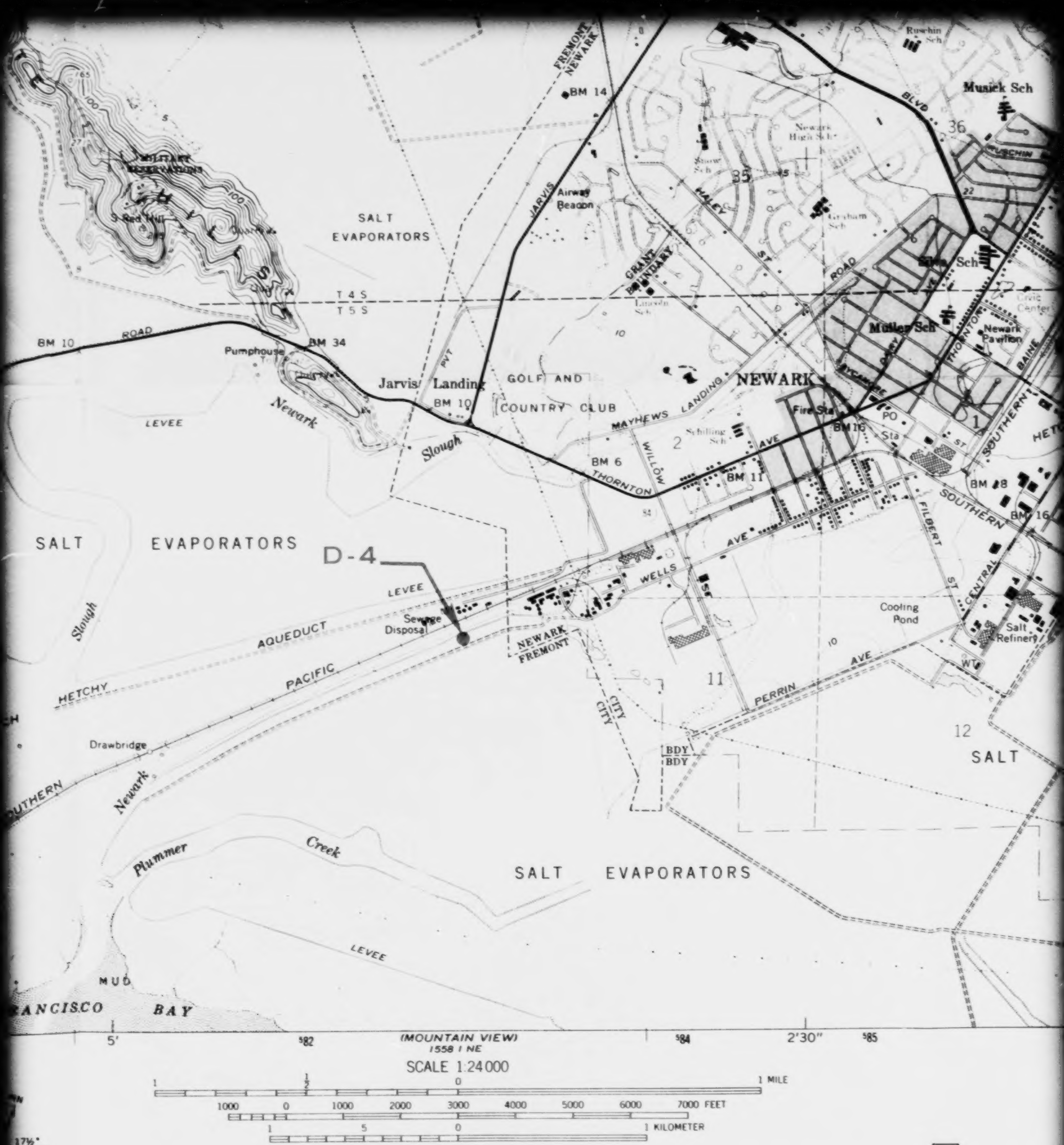

GN
MN
0°34'
10 MILS
17½°
311 MILS

UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



DEPTH C
SHORELINE

THIS MAP
FOR SALE BY U. S. GEOLOGIC
A FOLDER DESCRIBIN


D-4
SALT EVAPORATORS
SALT EVAPORATORS
SALT EVAPORATORS
SALT
MILITARY RESERVATION
Red Hill
T 4 S
T 5 S
BM 10
ROAD
BM 34
Pumphouse
Newark Slough
LEVEE
Jarvis Landing
BM 10
GOLF AND COUNTRY CLUB
Airway Beacon
JARVIS
FREMONT
NEWARK
BM 14
GRANT BOUNDARY
Lincoln Sch
NEWARK
MAYHEWS LANDING
Schilling Sch
WILLOW
THORNTON AVE
BM 6
BM 11
Fire Sta
BM 16
PO Sta
Newark High Sch
Snow Sch
Graham Sch
HALEY ST
ROAD
Ruschin Sch
Musick Sch
BLVD
RUSCHIN
Silva Sch
Mulher Sch
Civic Center
Newark Pavilion
SYCAMORE
THORNTON
BAINE
SOUTHERN
HETCH
BM 18
BM 16
SOUTHERN
FILBERT ST
CENTRAL
Salt Refinery
WT
Cooling Pond
WELLS AVE
LEVEE
Sewage Disposal
AQUEDUCT
HETCHY
PACIFIC
SOUTHERN
Drawbridge
Newark
Slough
NEWARK
FREMONT
CITY
CITY
BDY
BDY
PERRIN AVE
Plummer Creek
LEVEE
MUD
FRANCISCO BAY
2
11
12
1
35
36
5'
582
(MOUNTAIN VIEW)
1558 I NE
584
2'30"
585
SCALE 1:24 000
1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
5
0
1 KILOMETER
17½°
31 MILS

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 7 FEET

NETIC NORTH
OF SHEET

QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

shown in purple compile
taken 1968. This informatio
Purple tint indicates extensio

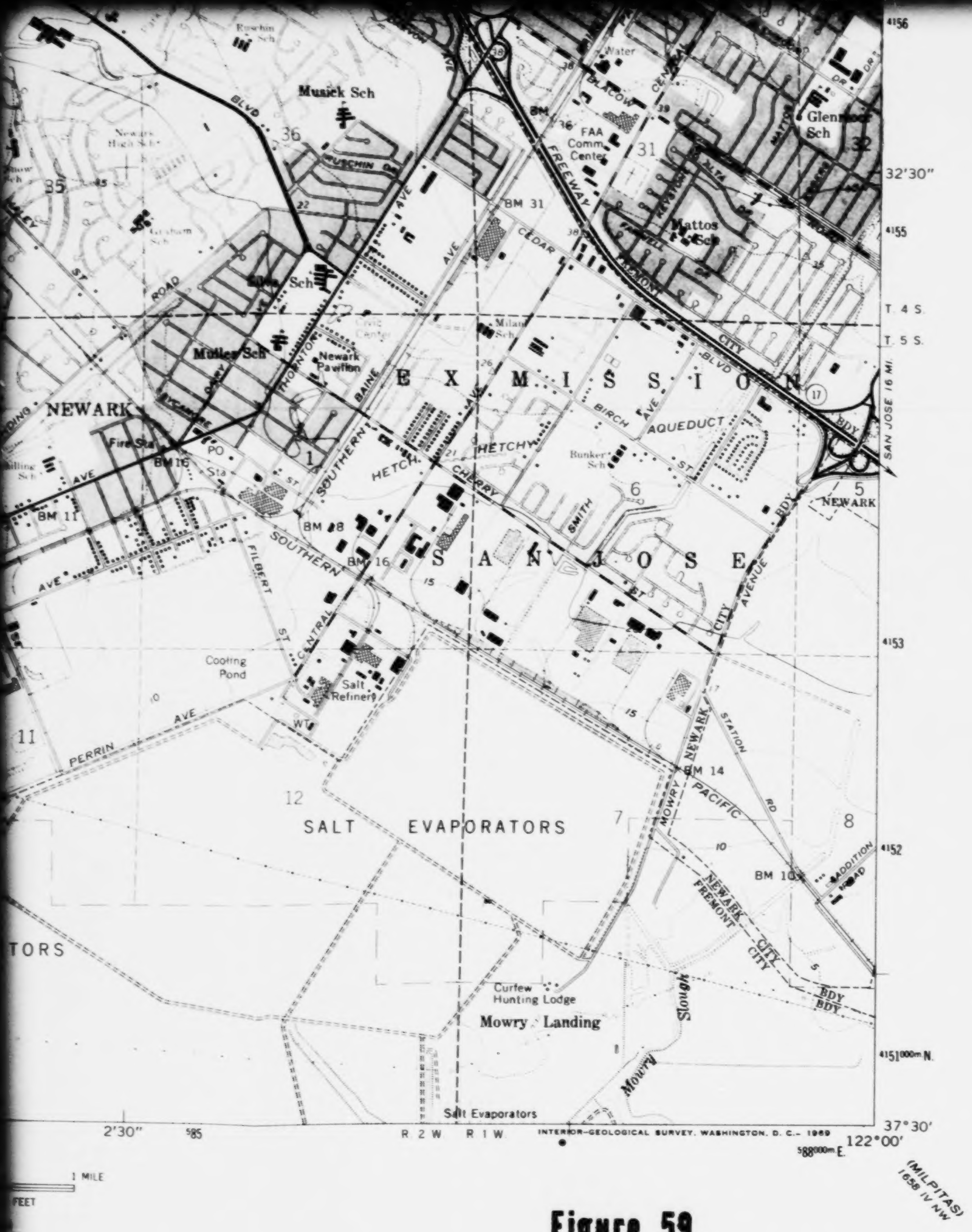

Ruschin Sch
Musick Sch
Newark High Sch
36
35
RUSCHIN DR
BLVD
ROAD
Graham Sch
Ellis Sch
Mueller Sch
NEWARK
Fire Sta
Schilling Sch
PO
Sta
BM 16
BM 11
AVE
THORNTON
Civic Center
Newark Pavilion
Water
FAA Comm Center
BM 31
FREEWAY
CEDAR
31
Glenmoor Sch
32
Mattos Sch
FREMONT
BLVD
CITY
Milani Sch
EX MISSION
SAN JOSE
BAINE
SOUTHERN
HETCH HETCHY
AQUEDUCT
CHERRY
BIRCH
Bunker Sch
6
5
NEWARK
SMITH
BM 18
BM 16
1
FILBERT ST
CENTRAL
Cooling Pond
Salt Refinery
WT
PERRIN AVE
11
12
SALT EVAPORATORS
7
8
BM 14
MOWRY
NEWARK
PACIFIC
STATION RD
BM 10
ADDITION ROAD
NEWARK FREMONT CITY BDY
TORS
Curlew Hunting Lodge
Mowry Landing
Mowry Slough
Salt Evaporators
SAN JOSE 16 MI.
T. 4 S.
T. 5 S.
4156
32'30"
4155
4153
4152
4151000m N.
37°30'
2'30"
585
R 2 W
R 1 W
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1969
588000m E.
122°00'
1 MILE
FEET
(MILPITAS)
1658 IV NW

Figure 59.

Reproduced from best available copy.

QUADRANGLE LOCATION

NEWARK, CALIF.
SE/4 HAYWARD 15' QUADRANGLE
N3730—W12200/7.5

1959
PHOTOREVISED 1968
AMS 1559 II SE—SERIES V895

Areas shown in purple compiled from aerial photographs
taken 1968. This information not field checked

Purple tint indicates extension of urban areas

N, D. C. 20242
ST

Note: Indication numbers D-5 through D-12 appear on Figure 58, the Redwood Point map.

D-5	July -	A brown substance was detected on the water's surface within this dock area. Indications from the reconnaissance data were that a submerged discharge was located in this immediate vicinity. The discoloration mentioned above seemed to harbor in this position without any significant sign of dispersion.
D-6	April -	A surface level outfall was discharging a gray-brown substance into the Westpoint Slough at this particular location.
	July -	A dark brown substance was being discharged into Westpoint Slough and Redwood Creek from the position shown in Figure 58. The effluent dispersed quickly in the receiving water.
D-7	April -	A gray-brown outflow into the Bay from these two waterways was readily seen. Sun reflection from capillary wave action prevented measurement of any plume or dispersion pattern.
	July -	Same indication as April.
D-8	April -	A surface level outfall was seen at this place but a plume was not visible. Day time thermal imagery recorded a flow of warm water from this particular area.

D-9 April - There were indications of a subsurface flow of water at this location. A green-brown plume 46 meters (150 feet) wide extended out into San Francisco Bay for approximately 366 meters (1,200 feet).

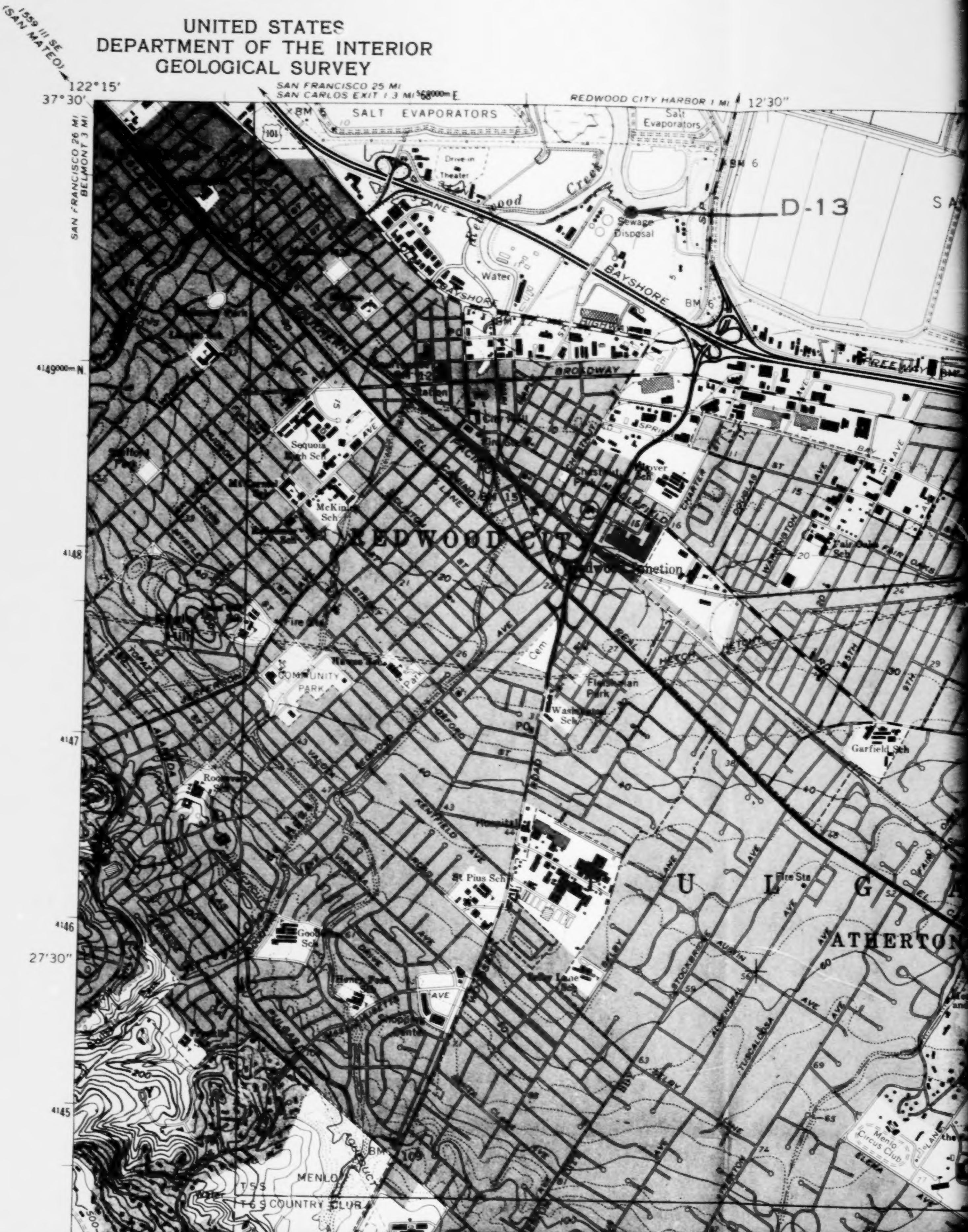
D-10 April - Characteristics of a sub-surface outfall were detected at this location. There was no visible plume. The configuration of this area at the time of flight is shown in red on Figure 58.

D-11 July - A pond directly north from the mouth of Steinberger Slough is discharging a dark green water into the Slough. No visible plume was generated from this discharge. There were no live chlorophyllic algae associated with these ponds or the discharge at the time of flight.

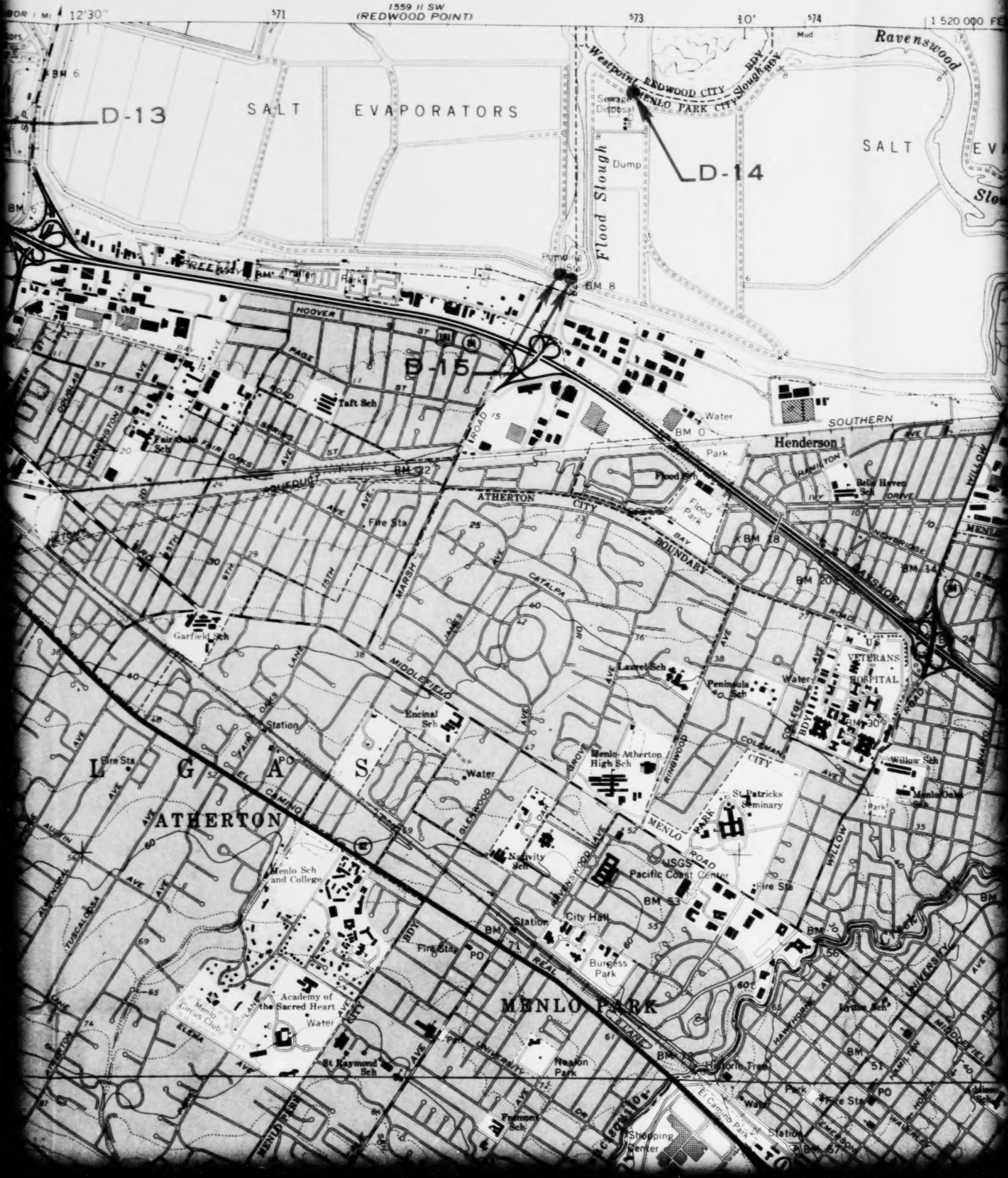
D-12 July - The pond was covered with a white substance as indicated on Figure 58. This substance appeared to be discharging into Redwood Creek.

Note: Indication numbers D-13 through D-15 appear on Figure 60, the Palo Alto map.

D-13 April - This was the location of the Redwood City STP discharge reportedly having a flow rate of 28.39 Kcmd (7.5 mgd).

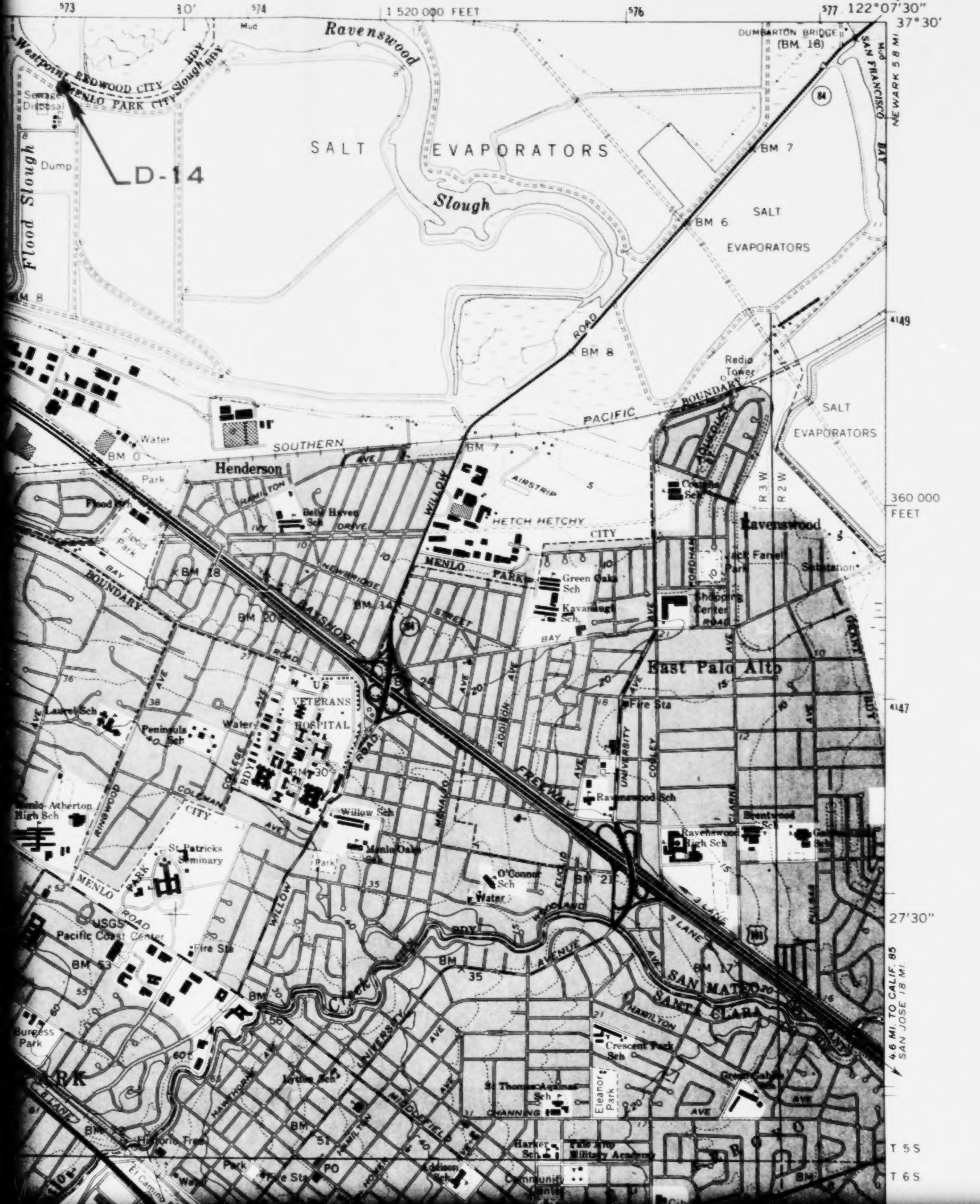

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
1559 III SE (SAN MATEO)
122°15'
37°30'
SAN FRANCISCO 25 MI
SAN CARLOS EXIT 1.3 MI
568000m E.
REDWOOD CITY HARBOR 1 MI
12'30"
SAN FRANCISCO 26 MI
BELMONT 3 MI
SALT EVAPORATORS
Salt Evaporators
BM 6
101
Drive-in Theater
Redwood Creek
Sewage Disposal
D-13
Water
BAYSHORE
FREEWAY
BROADWAY
4149000m N.
Sequoia High Sch
McKinley Sch
Hoover Sch
Fair Oaks Sch
REDWOOD CITY
Redwood Junction
4148
Fire Sta
COMMUNITY PARK
Cem
Fleishhacker Park
Washington Sch
PO
Garfield Sch
4147
Roosevelt Sch
Hospital
KENTFIELD AVE
St Pius Sch
Fire Sta
U L G A
ATHERTON
4146
27'30"
Goodwin Sch
Henry Ford Sch
Selby Lane Sch
Shopping Center
STOCKBRIDGE
AUSTIN
TUSCALOOSA
SELBY
4145
Menlo Circus Club
MENLO COUNTRY CLUB
T5S
T6S
BM 109
200
500

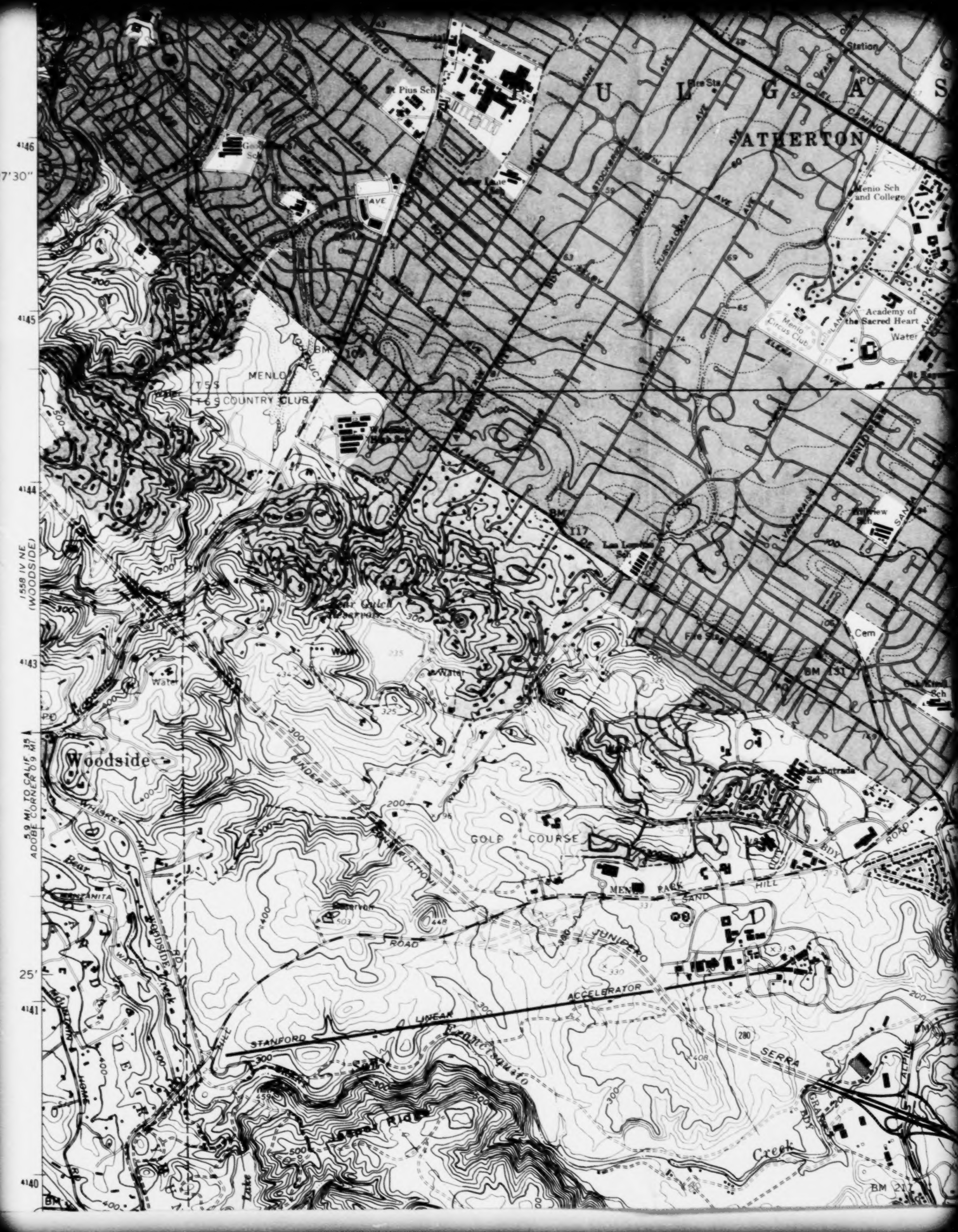
75-a

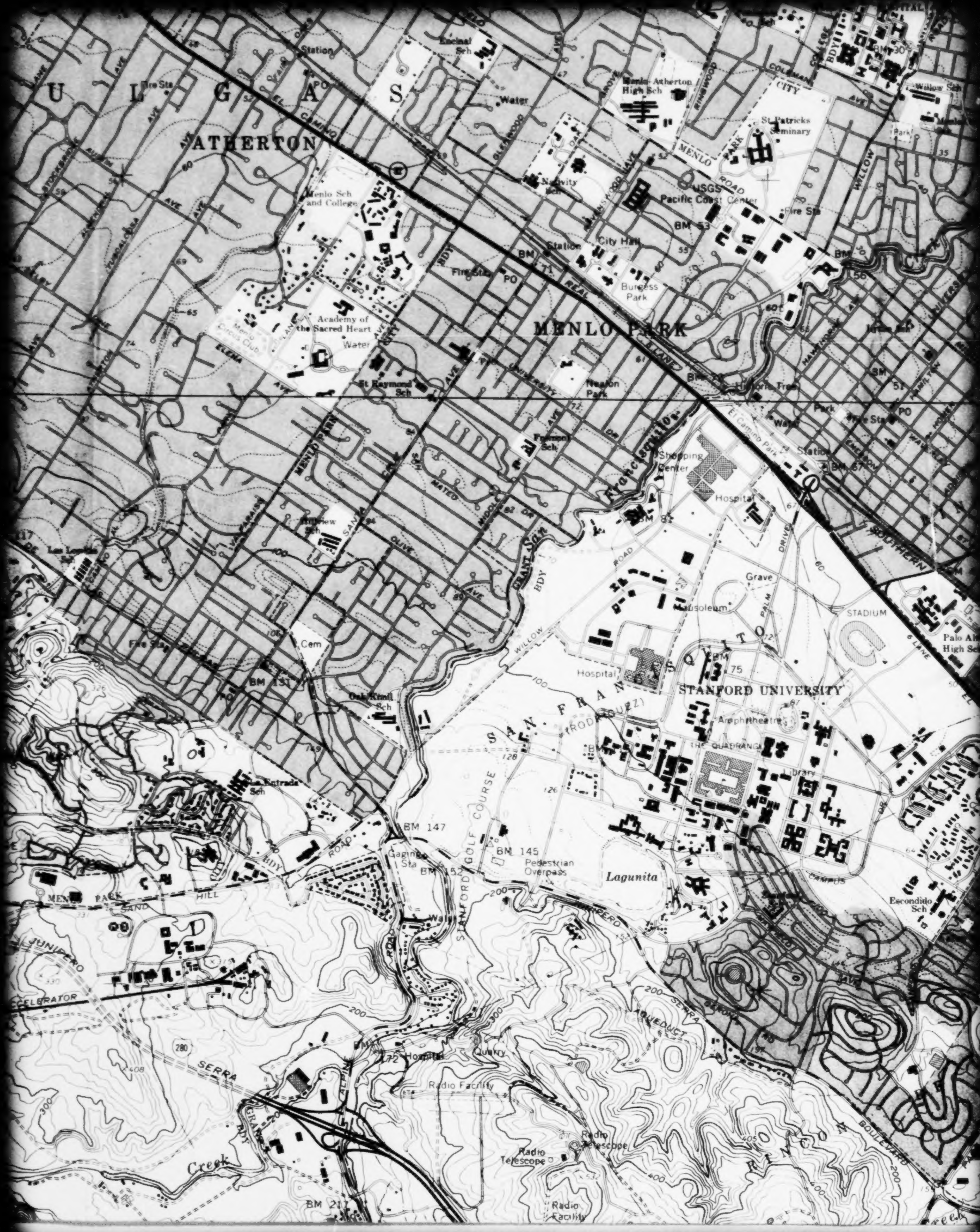


12'30"
571
1559 II SW
(REDWOOD POINT)
573
10'
574
1 520 000 FE
D-13
SALT EVAPORATORS
Westpoint
REDWOOD CITY BDY
MENLO PARK CITY
Slough
Sewage Disposal
Dump
Flood Slough
D-14
Ravenswood
SALT EV
Pumping Sta
BM 8
FREEWAY
HOOVER
D-15
Taft Sch
Fair Oaks Sch
SOUTHERN
Water
BM 0
Henderson
Park
Flood Sch
Flood Park
Belle Haven Sch
AQUEDUCT
ATHERTON CITY BOUNDARY
BAY
BAYSHORE
Fire Sta
MARSH
CATALPA
Garfield Sch
MIDDLEFIELD
Laurel Sch
Peninsula Sch
U S VETERANS HOSPITAL
Encinal Sch
Station
Fire Sta
PO
L G A S
Water
Menlo-Atherton High Sch
COLEMAN
St Patricks Seminary
Willow Sch
Menlo Oaks Sch
ATHERTON
EL CAMINO
Nativity Sch
USGS Pacific Coast Center
Fire Sta
Menlo Sch and College
Station
City Hall
Burgess Park
Academy of the Sacred Heart
Menlo Circus Club
Water
MENLO PARK
St Raymond Sch
Nealon Park
Historic Tree
Fremont Sch
Shopping Center
El Camino Park
Station
Fire Sta
PO

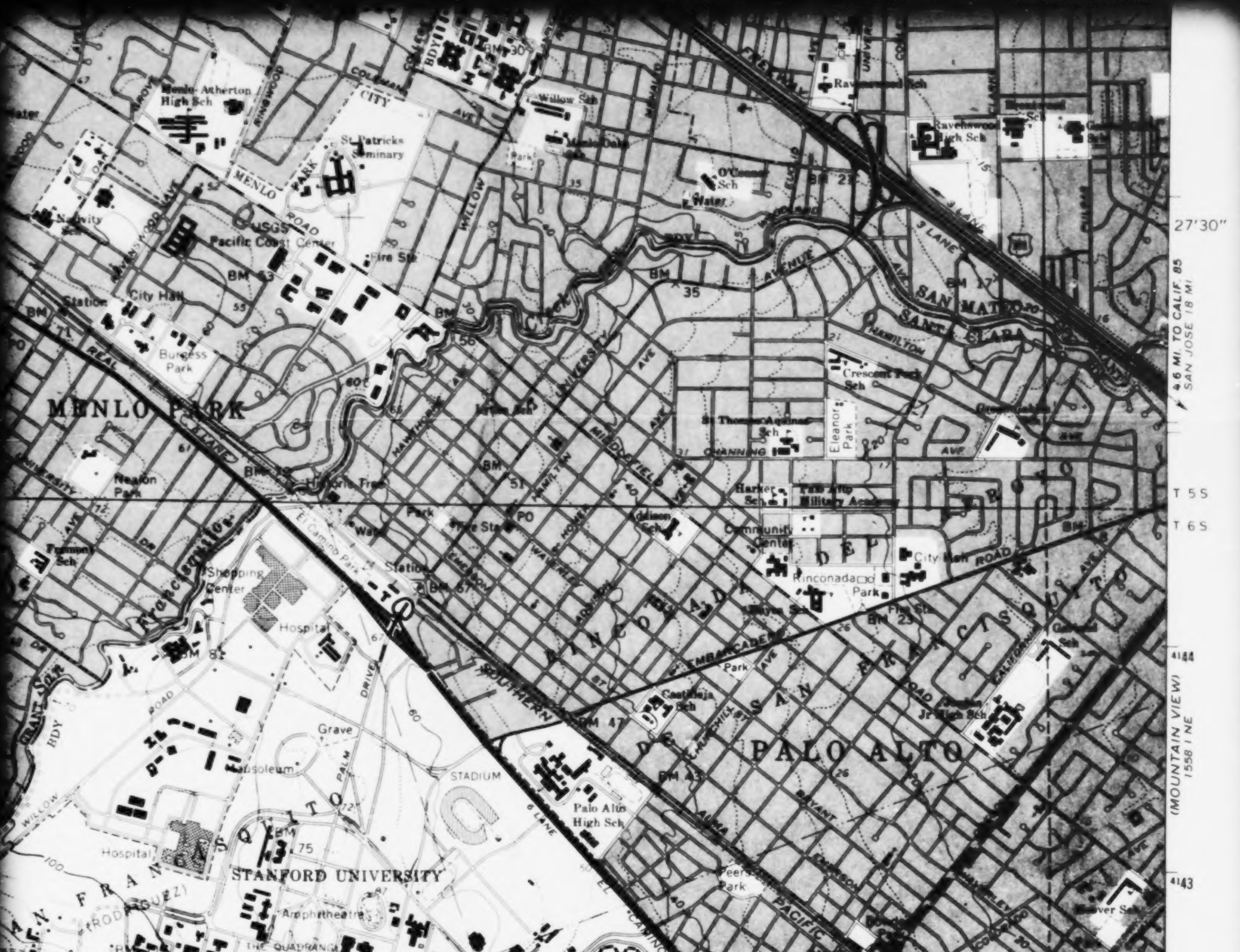
PALO ALTO QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 PALO ALTO 15' QUADRANGLE

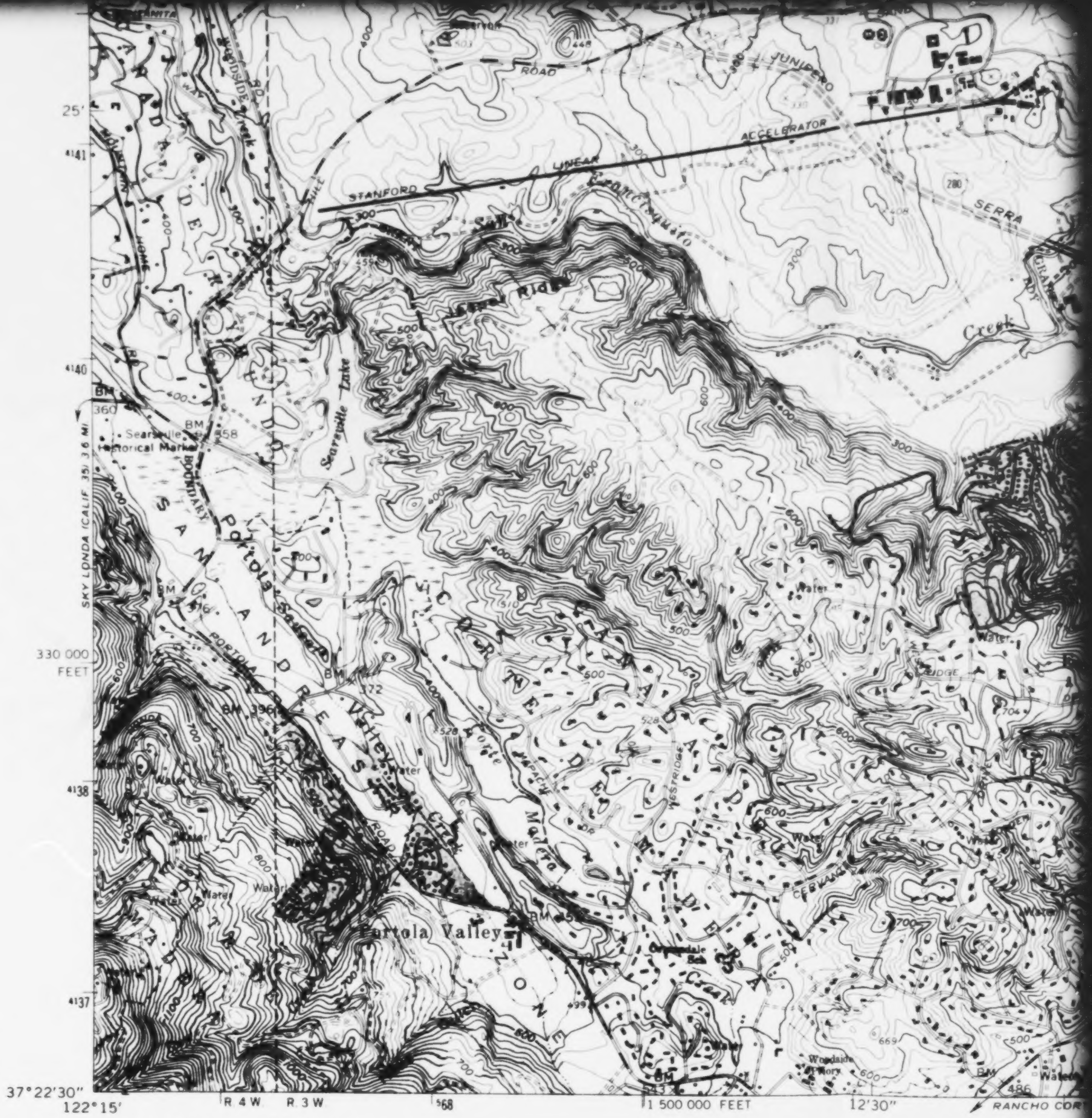

1559 II SE (NEWARK)
573
10'
574
1 520 000 FEET
576
577
122°07'30"
37°30'
Mud
Ravenswood
Westpoint
REDWOOD CITY
MENLO PARK CITY
Slough
BDY
Sewage Disposal
Dump
Flood Slough
D-14
SALT EVAPORATORS
Slough
DUMBARTON BRIDGE (BM 16)
SAN FRANCISCO BAY
NEWARK 5.8 MI.
84
BM 7
BM 6
SALT EVAPORATORS
BM 8
ROAD
BM 8
Radio Tower
BOUNDARY
PACIFIC
SOUTHERN
SALT EVAPORATORS
4149
Water
BM 0
BM 7
AIRSTRIP
Henderson
Park
HAMILTON
Belle Haven Sch
IVY
DRIVE
WILLOW
HETCH HETCHY
Costaño Sch
R 3 W
R 2 W
360 000 FEET
Ravenswood
Flood Sch
Flood Park
CITY
MENLO
PARK
Green Oaks Sch
Kavanaugh Sch
Jack Farrell Park
Substation
BAY
BOUNDARY
BM 18
NEWBRIDGE
STREET
BM 14
BAYSHORE
FORDHAM
Shopping Center
BAY
BM 20
ROAD
East Palo Alto
BM 24
US VETERANS HOSPITAL
Laurel Sch
Peninsula Sch
Water
COLLEGE
ADDISON
4147
Fire Sta
UNIVERSITY
COOLEY
BM 30
FREEWAY
Ravenswood Sch
Menlo-Atherton High Sch
RINGWOOD
COLEMAN
CITY
Willow Sch
Menlo Oaks Sch
Ravenswood High Sch
Brentwood Sch
CLARKE
St Patricks Seminary
MENLO
PARK
Park
O'Connor Sch
Water
BM 21
ROAD
USGS Pacific Coast Center
WILLOW
WOODLAND
3 LANE
101
27'30"
Fire Sta
BM 53
BDY
AVENUE
BM 17
SAN MATEO
SANTA CLARA
Creek
BM 35
BM 56
HAMILTON
Burgess Park
Crescent Park Sch
4.6 MI. TO CALIF. 85
SAN JOSE 18 MI.
ARK
UNIVERSITY
Lydian Sch
MIDDLEFIELD
St Thomas Aquinas Sch
Eleanor Park
CHANNING
Greer Park
BM
Historic Tree
BM 51
Harker Sch
Palo Alto Military Academy
T 5 S
T 6 S
Park
Fire Sta
PO
Addison Sch
Community Center
El Camino
City
BM


4146
27'30"
4145
4144
1558 IV NE
(WOODSIDE)
4143
5.9 MI. TO CALIF. 35
ADOBE CORNER 0.9 MI.
25'
4141
4140
U L G A S
ATHERTON
St Pius Sch
Fire Sta
Station
Menlo Sch
and College
Academy of
the Sacred Heart
Menlo
Circus Club
Water
EL CAMINO
STOCKBRIDGE
TUSCALOOSA
ELENA
MENLO
MENLO COUNTRY CLUB
ALAMEDA
Las Lomitas Sch
Hillview Sch
Cem
Fire Sta
BM 117
BM 131
Bear Gulch Reservoir
Water
225
434
325
300
Woodside
WHISKEY HILL
Bear
MANZANITA
WOODSIDE RD
MOUNTAIN HOME RD
Creek
GOLF COURSE
La Entrada Sch
MENLO PARK
SAND HILL ROAD
Reservoir
503
648
JUNIPERO
SERRA
280
330
ACCELERATOR
STANFORD LINEAR
Francisquito
Creek
459
Lake
BM 217
200
400
500



ATHERTON
MENLO PARK
STANFORD UNIVERSITY
Menlo Sch and College
Academy of the Sacred Heart
Menlo Circus Club
St Raymond Sch
Encinal Sch
Menlo-Atherton High Sch
St Patricks Seminary
USGS Pacific Coast Center
City Hall
Burgess Park
Nealon Park
Fremont Sch
Hillview Sch
Las Lomitas Sch
Oak Knoll Sch
La Entrada Sch
Willow Sch
Shopping Center
Hospital
Mausoleum
Grave
STADIUM
Palo Alto High Sch
THE QUADRANGLE
Amphitheatre
Library
Lagunita
GOLF COURSE
Pedestrian Overpass
Gaging Sta
Escondido Sch
Radio Facility
Radio Telescope
Quarry
EL CAMINO REAL
SOUTHERN PACIFIC
SAND HILL ROAD
JUNIPERO SERRA BOULEVARD
ALPINE ROAD
SAN FRANCISQUITO
San Francisquito Creek
RINCON
ACCELERATOR
280
Cem
Fire Sta
PO
Station
Water
BM 53
BM 131
BM 147
BM 145
BM 152
BM 75


MENLO PARK
PALO ALTO
STANFORD UNIVERSITY
Menlo-Atherton High Sch
St Patricks Seminary
Willow Sch
Ravenswood Sch
Ravenswood High Sch
O'Connor Sch
USGS Pacific Coast Center
City Hall
Burgess Park
Nativity Sch
Nealon Park
Fremont Sch
Shopping Center
Hospital
Crescent Park Sch
St Thomas Aquinas Sch
Eleanor Park
Harker Sch
Palo Alto Military Academy
Community Center
City Hall
Rinconada Park
Addison Sch
Castilleja Sch
Jr High Sch
Palo Alto High Sch
Peers Park
Stadium
Mausoleum
Grave
The Quadrangle
Amphitheatre
Library
Lagunita
Pedestrian Overpass
Escondido Sch
Mayfield Sch
Hoover Sch
Loma Vista
Neal
U.S. Veterans Hospital
Radio Telescope
Radio Telescope
Radio Facility
Historic Tree
Station
Fire Sta
Water
EL CAMINO REAL
SOUTHERN PACIFIC
SAN FRANCISQUITO
RINCONADA
SAN MATEO
SANTA CLARA
MIDDLEFIELD
UNIVERSITY
EMBARCADERO
CHANNING
HAMILTON
ALMA
ARBORETUM ROAD
PALM DRIVE
JUNIPERO SERRA BOULEVARD
AQUEDUCT
PAGE MILL ROAD
RINCON
BM 53
BM 35
BM 47
BM 43
BM 145
27'30"
4.6 MI. TO CALIF. 85
SAN JOSE 18 MI
T 5 S
T 6 S
4144
4143
4142
4141
4140
25'
(MOUNTAIN VIEW)
1558 I NE
MOUNTAIN VIEW 3 MI.
SAN JOSE 17 MI.


25'
4141
4140
330 000
FEET
4138
4137
37°22'30"
122°15'
R. 4 W.
R. 3 W.
568
1 500 000 FEET
12'30"
RANCHO COR
SKY LONDA (CALIF. 35) 3.6 MI.
JUNIPERO
SERRA
ROAD
STANFORD LINEAR ACCELERATOR
280
Creek
Jasper Ridge
Searsville Lake
Searsville
Historical Marker
BM
360
BOUNDARY
SAN ANDREAS FAULT ZONE
CORTE DE MADERA
Portola Valley
Water
Woodside Priory
669
486
(LA HONDA)
1558 IV SE

Mapped, edited, and published by the Geological Survey
with cooperation by the California Department of Water Resources

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods
and by planetable surveys 1953. Aerial photographs taken 1948.
Revised from aerial photographs taken 1960. Field checked 1961

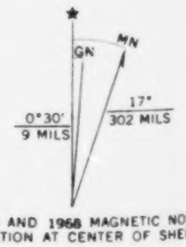
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks,
zone 10, shown in blue

Red tint indicates area in which only landmark buildings are shown

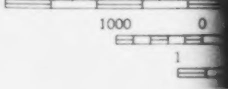
Dashed land lines indicate approximate locations

Fine red dashed lines indicate selected fence lines

A portion of this map lies within a subsidence area

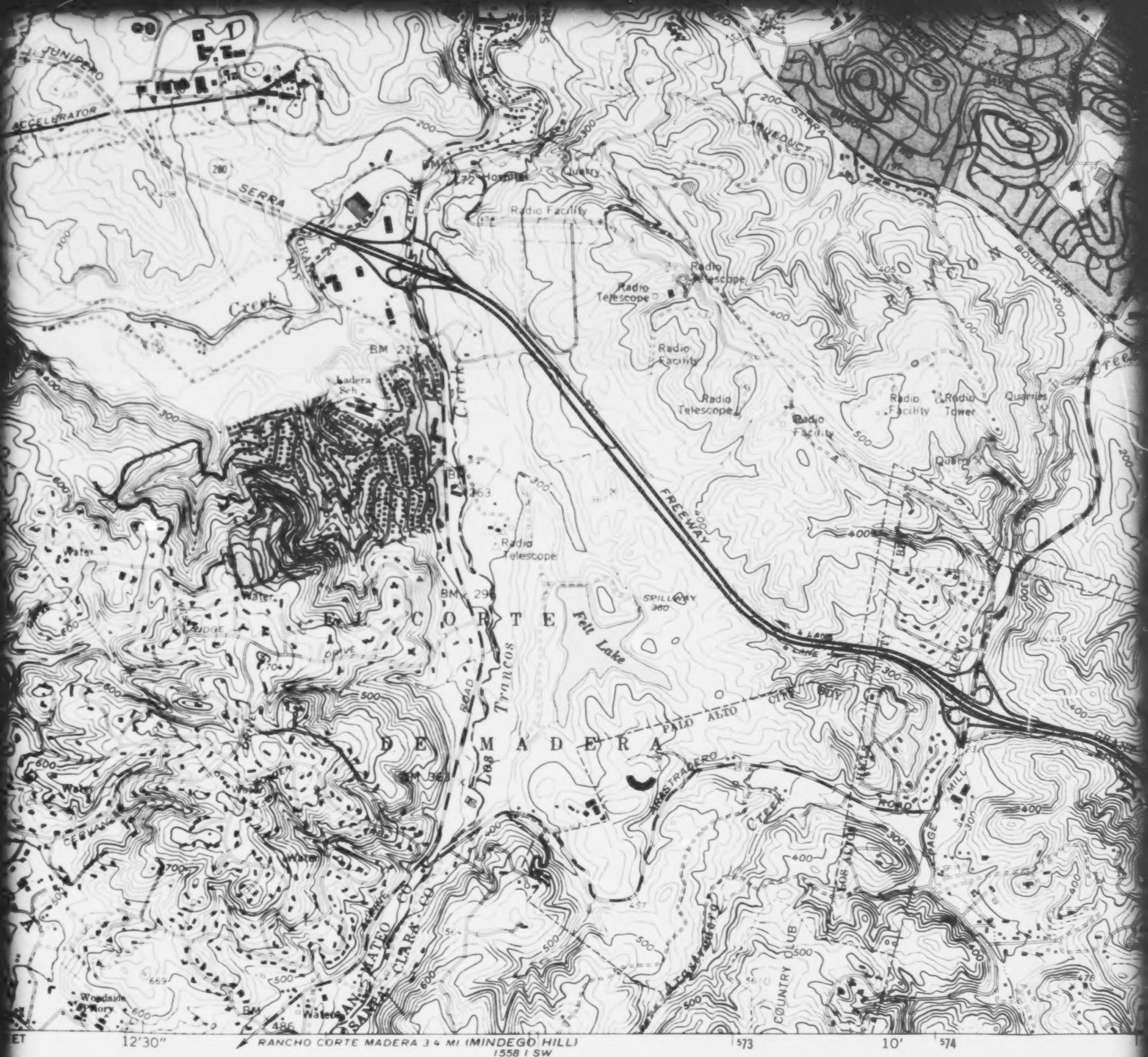

GN
MN
0°30'
9 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

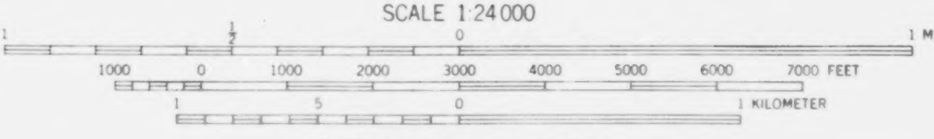


SHOREL

THIS
FOR SALE BY U. S. GEOL
A FOLDER DESC


JUNIPERO
ACCELERATOR
SERRA
Creek
Hospital
Quarry
Radio Facility
AQUEDUCT
SERRA
BOULEVARD
Radio Telescope
R I N C O N
BM 217
Ladera Sch
Radio Facility
Radio Telescope
Radio Facility
Radio Tower
Quarries
Quarry
FREEWAY
BM 263
Radio Telescope
BM 296
SPILLWAY 360
Felt Lake
E L C O R T E
D E M A D E R A
PALO ALTO CITY BDY
Los Trancos
Creek
ROAD
ARASTRADERO
ROAD
Arastradero Creek
SAN MATEO CO
SANTA CLARA CO
COUNTRY CLUB
LOS ALTOS HILLS
PAGE MILL
Water
Woodside Priory
BM 486
12'30"
RANCHO CORTE MADERA 3.4 MI (MINDEGO HILL)
1558 I SW
573
10'
574
SAN J

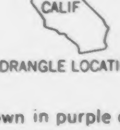
SCALE 1:24 000


1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
.5
0
1 KILOMETER

GN
MN
17°
302 MILS

1968 MAGNETIC NORTH
CENTER OF SHEET

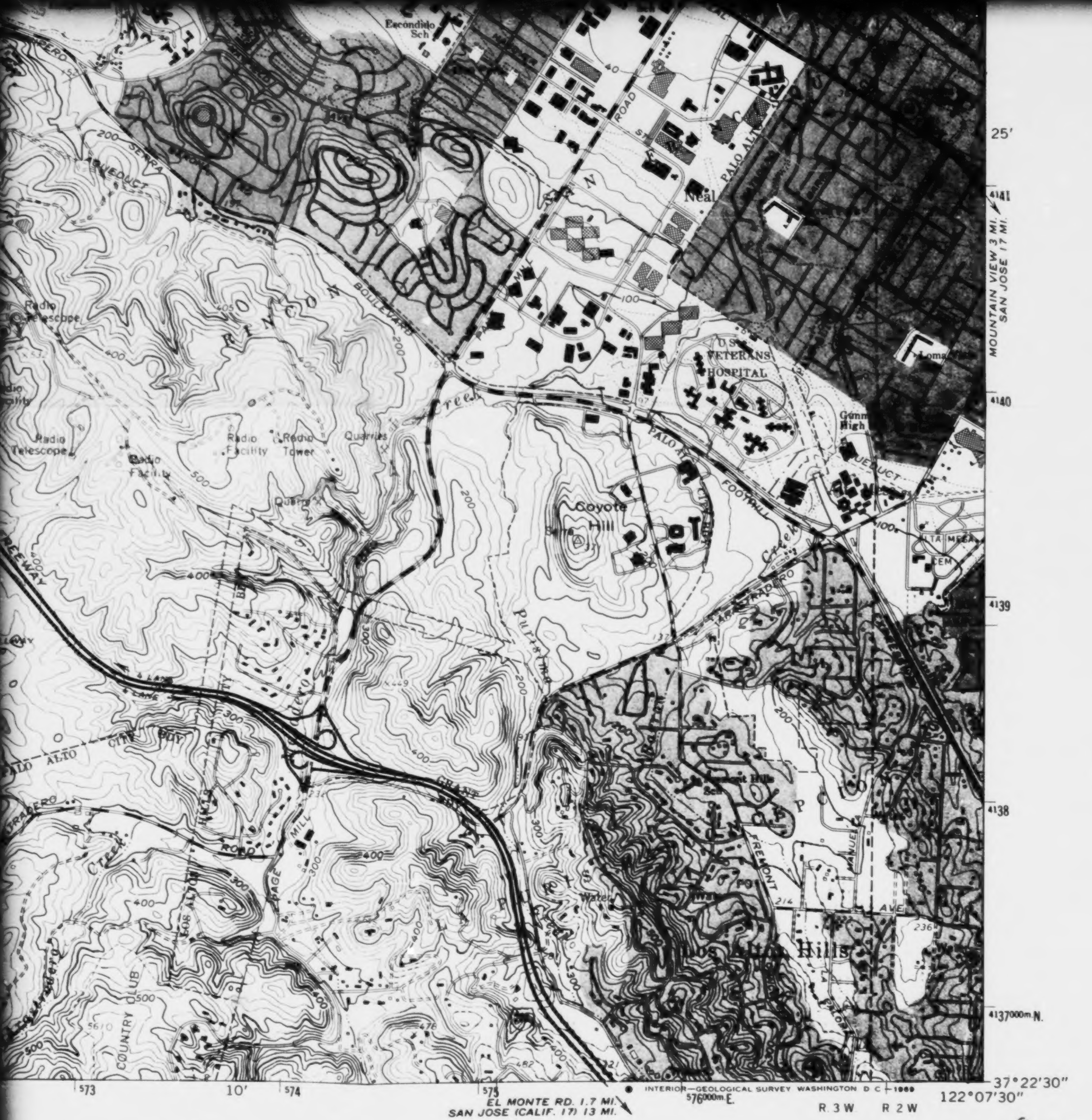
CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5 FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 7 FEET



QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purple comp
taken 1968. This information
Purple tint indicates extension o


Escondido Sch
SERRA
AQUEDUCT
RINCON
BOULEVARD
Radio Telescope
Radio Facility
Radio Tower
Quarries
Quarry
Coyote Hill
U.S. VETERANS HOSPITAL
PALO ALTO
Neal
Gunn High
FOOTHILL
ARASTRADERO
Creek
Purisima
PALO ALTO CITY BDY
PAGE MILL
LOS ALTOS HILLS
COUNTRY CLUB
FREMONT
Los Altos Hills
FREEWAY
25'
4141
4140
4139
4138
4137000m.N.
MOUNTAIN VIEW 3 MI.
SAN JOSE 17 MI.
37°22'30"
122°07'30"
573
10'
574
575
576000m.E.
EL MONTE RD. 1.7 MI.
SAN JOSE (CALIF. 17) 13 MI.
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D.C.—1969
R.3W.
R.2W.
(CUPERTINO)
1558 I SE

1 MILE

6000 7000 FEET

1 KILOMETER

Figure 80.

S

IGH WATER

QUADRANGLE LOCATION

TANDARDS
, OR WASHINGTON, D.C. 20242
ILABLE ON REQUEST

Revisions shown in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban areas

PALO ALTO, CALIF.
NW/4 PALO ALTO 15' QUADRANGLE
N3722.5 – W12207.5/7.5

1961
PHOTOREVISED 1968
AMS 1558 I NW–SERIES V895

44<

July - Same indication as April. During this mission the effluent from the facility was quite gray indicating poor treatment.

D-14 April - The outfall for the Menlo Park STP was located here. This facility had a discharge flow rate of 22.33 Kcmd (5.9 mgd).

July - Same indication as April.

D-15 July - A surface level outfall was recorded at this point. It was not discoloring the Flood Slough water at the time of flight.

NOTE: Indication numbers D-16 through D-25 appear on Figure 61, the Mountain View map.

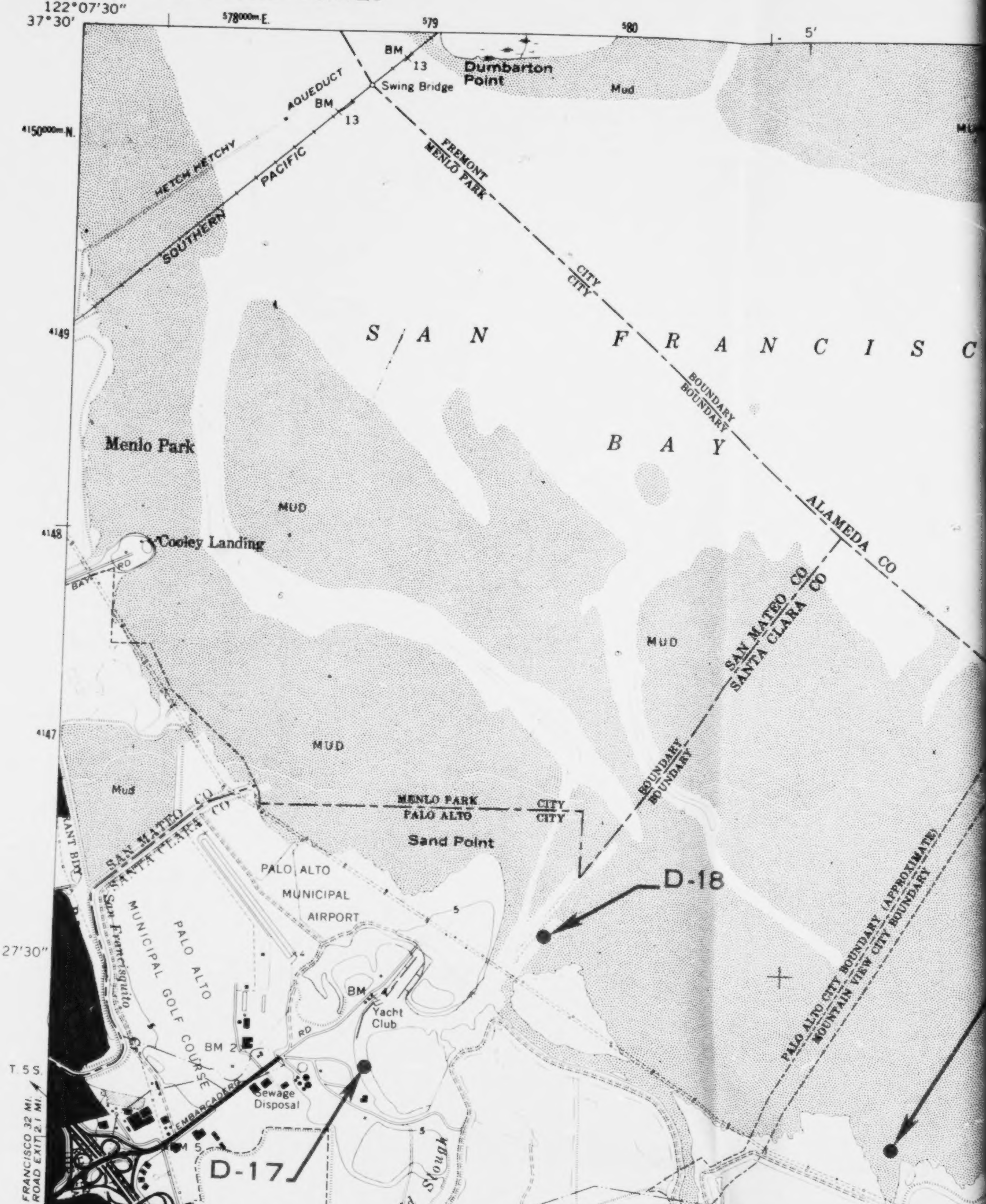
D-16 April - Day-time thermal imagery recorded a warm outflow at this point. The warm plume flowed generally southward and up Coyote Creek. Incoming tide may have influenced this flow. It was in flood stage at this time of flight.

D-17 July - This was the discharge from the Palo Alto STP. It was causing a green-gray discoloration in the receiving waters adjacent to the Yacht Harbor. It had a discharge rate of 49.70 Kcmd (13.13 mgd).

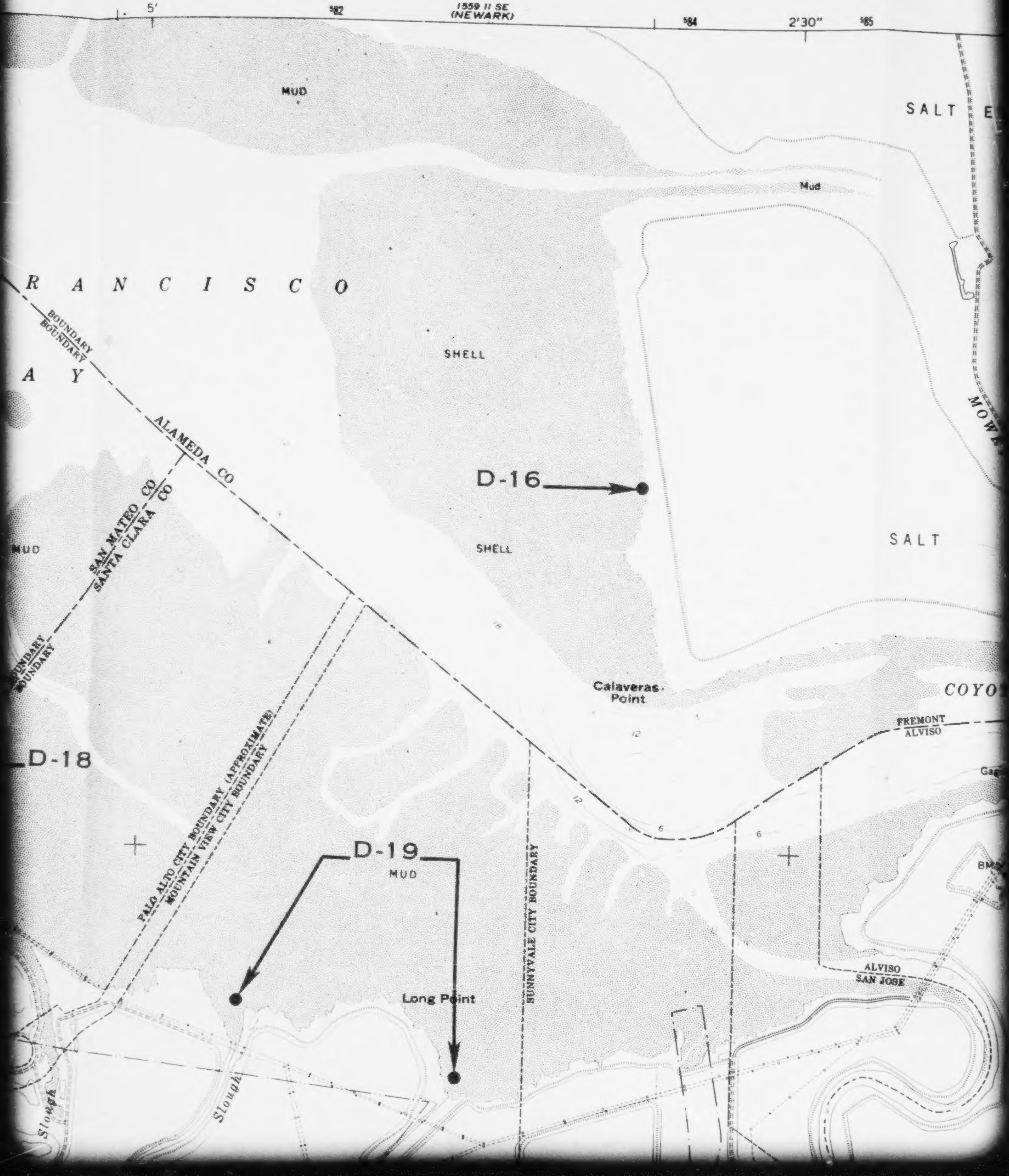
D-18 April - The outflow from this water was grayish-brown in color. It mixed rapidly as it entered the Bay and no plume was visible.

77-

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

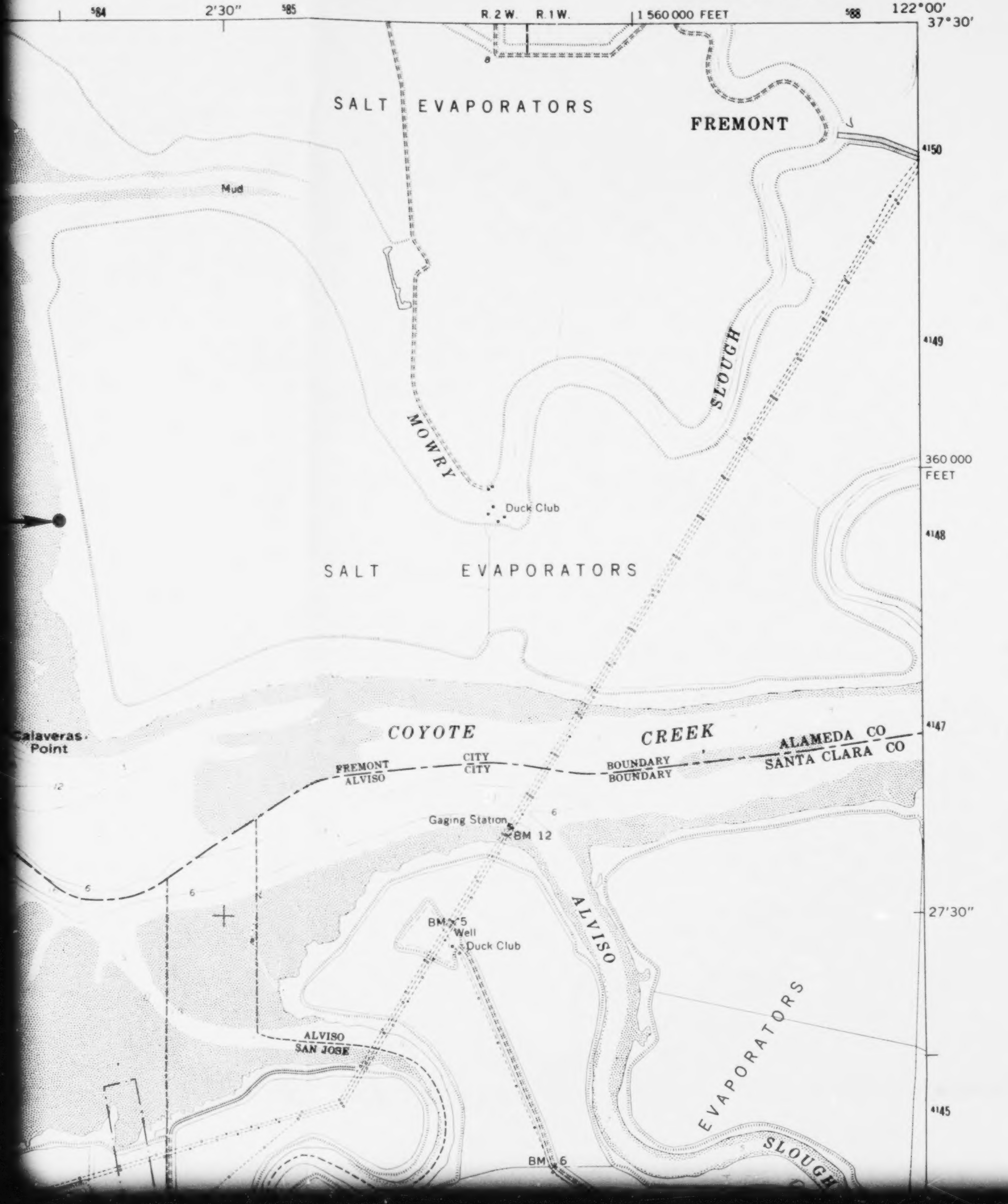

1559 II SW
(REDWOOD POINT)
122°07'30"
37°30'
578000m E.
579
580
5'
4150000m N.
4149
4148
4147
27'30"
T. 5 S.
BM
13
Dumbarton Point
Swing Bridge
Mud
HETCH HETCHY AQUEDUCT
SOUTHERN PACIFIC
FREMONT
MENLO PARK
CITY
CITY
BOUNDARY
BOUNDARY
S A N F R A N C I S C
B A Y
Menlo Park
MUD
Cooley Landing
BAY RD
ALAMEDA CO
SAN MATEO CO
SANTA CLARA CO
MENLO PARK
PALO ALTO
Sand Point
PALO ALTO MUNICIPAL AIRPORT
PALO ALTO MUNICIPAL GOLF COURSE
San Francisquito
D-18
D-17
BM 2
BM 5
BM 3
Yacht Club
Sewage Disposal
EMBARCADERO
RD
Radio Facility
Mayfield Slough
PALO ALTO CITY BOUNDARY (APPROXIMATE)
MOUNTAIN VIEW CITY BOUNDARY
5
SAN FRANCISCO 32 MI.
WILLOW ROAD EXIT 2.1 MI.

77-a

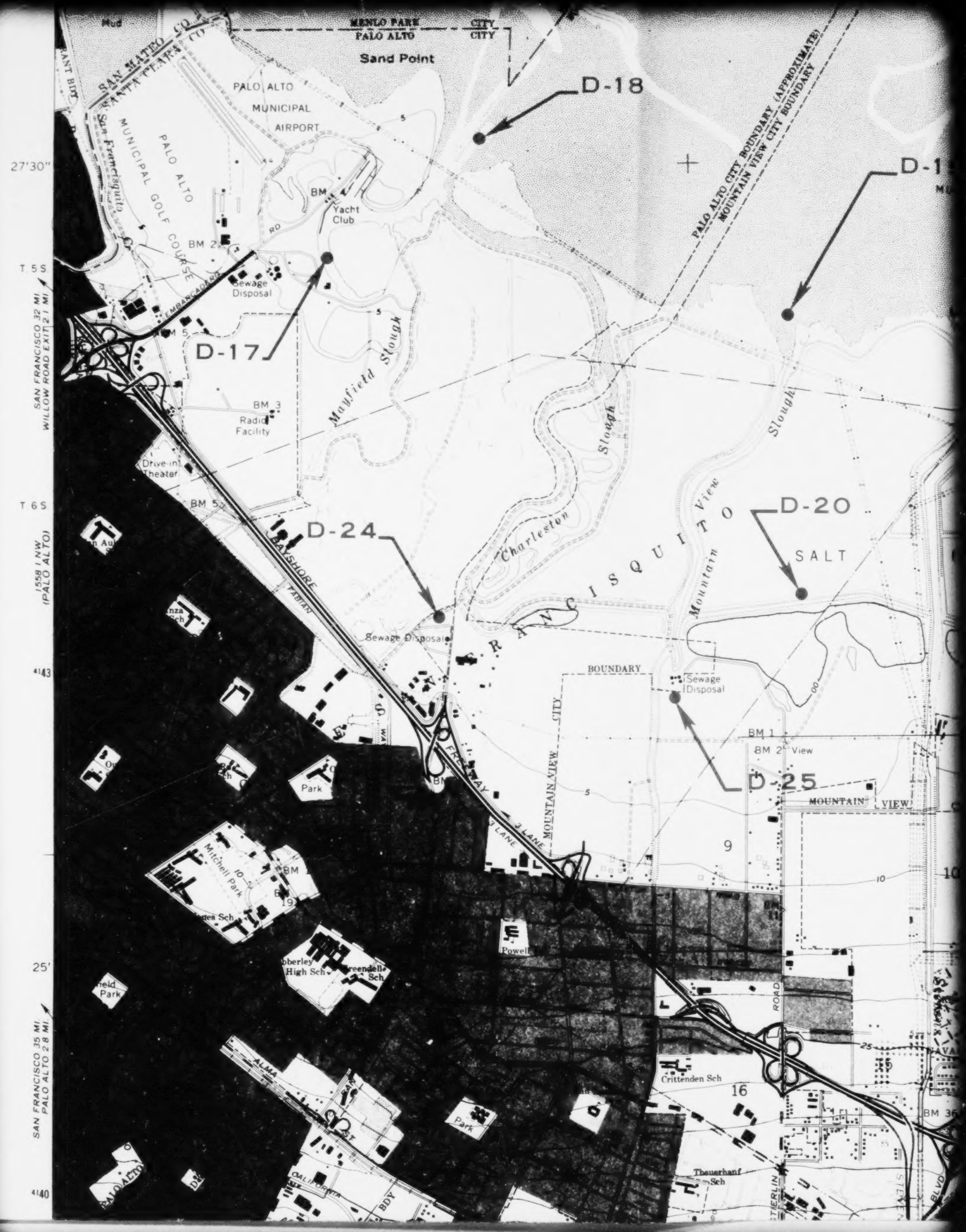

5'
582
1559 II SE
(NEWARK)
584
2'30"
585
MUD
SALT E
Mud
RANCISCO
AY
BOUNDARY
BOUNDARY
SHELL
ALAMEDA CO
SAN MATEO CO
SANTA CLARA CO
D-16
SHELL
SALT
MUD
BOUNDARY
BOUNDARY
MOWR
Calaveras Point
COYOT
FREMONT
ALVISO
D-18
12
12
6
6
Gag
PALO ALTO CITY BOUNDARY (APPROXIMATE)
MOUNTAIN VIEW CITY BOUNDARY
SUNNYVALE CITY BOUNDARY
D-19
MUD
BM
ALVISO
SAN JOSE
Long Point
Slough
Slough

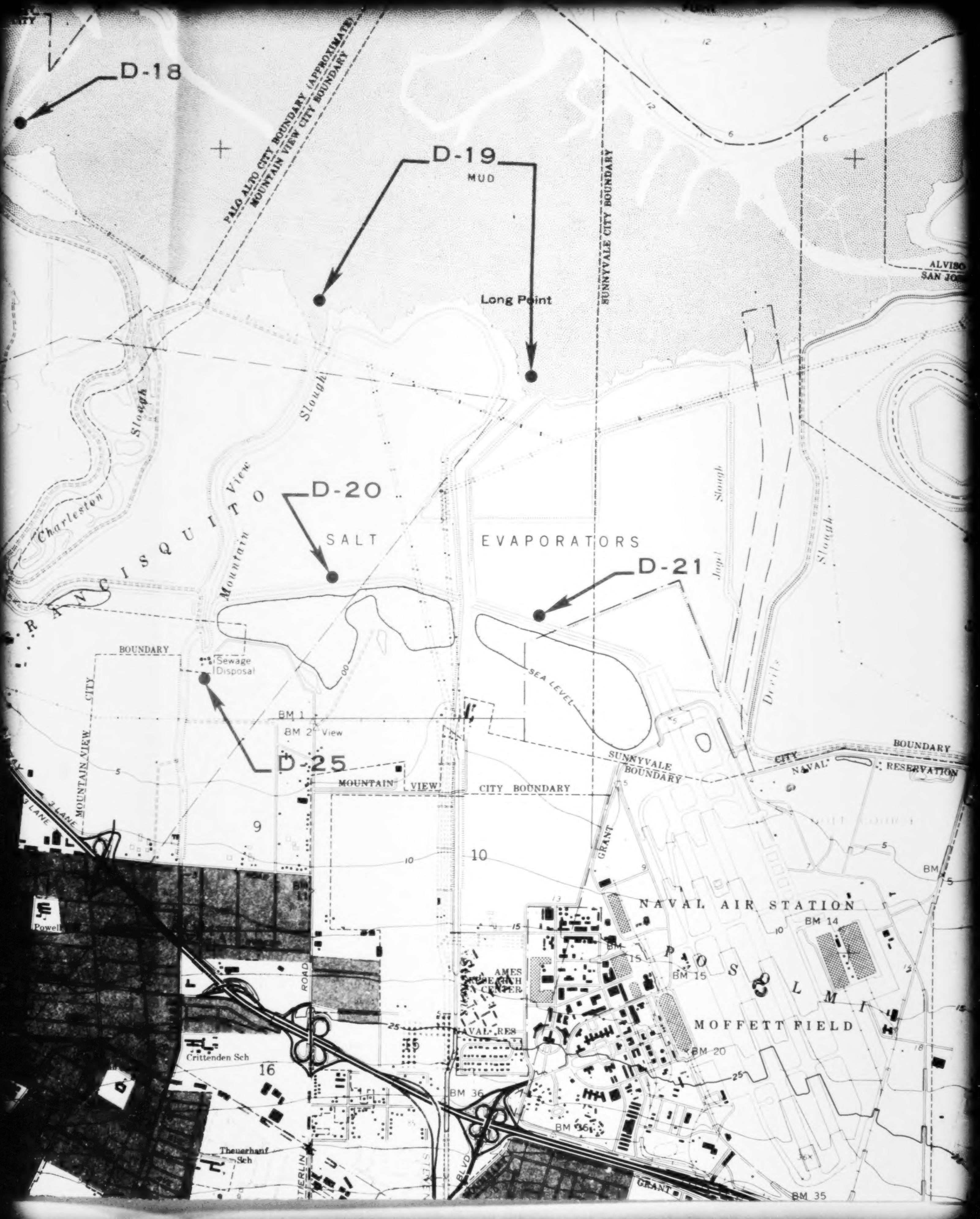
MOUNTAIN VIEW QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 PALO ALTO 15' QUADRANGLE

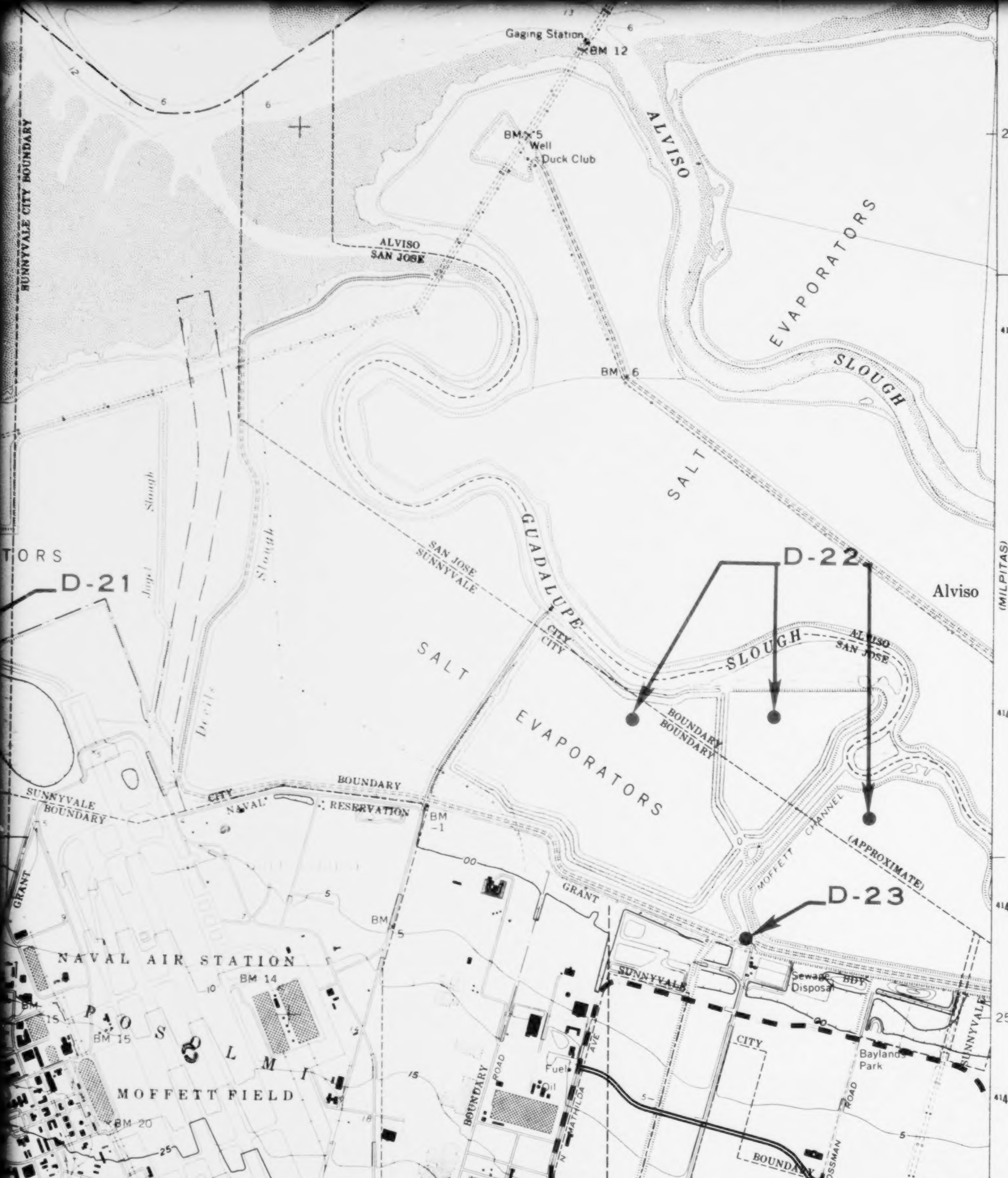
1659 III SW
(NILES)



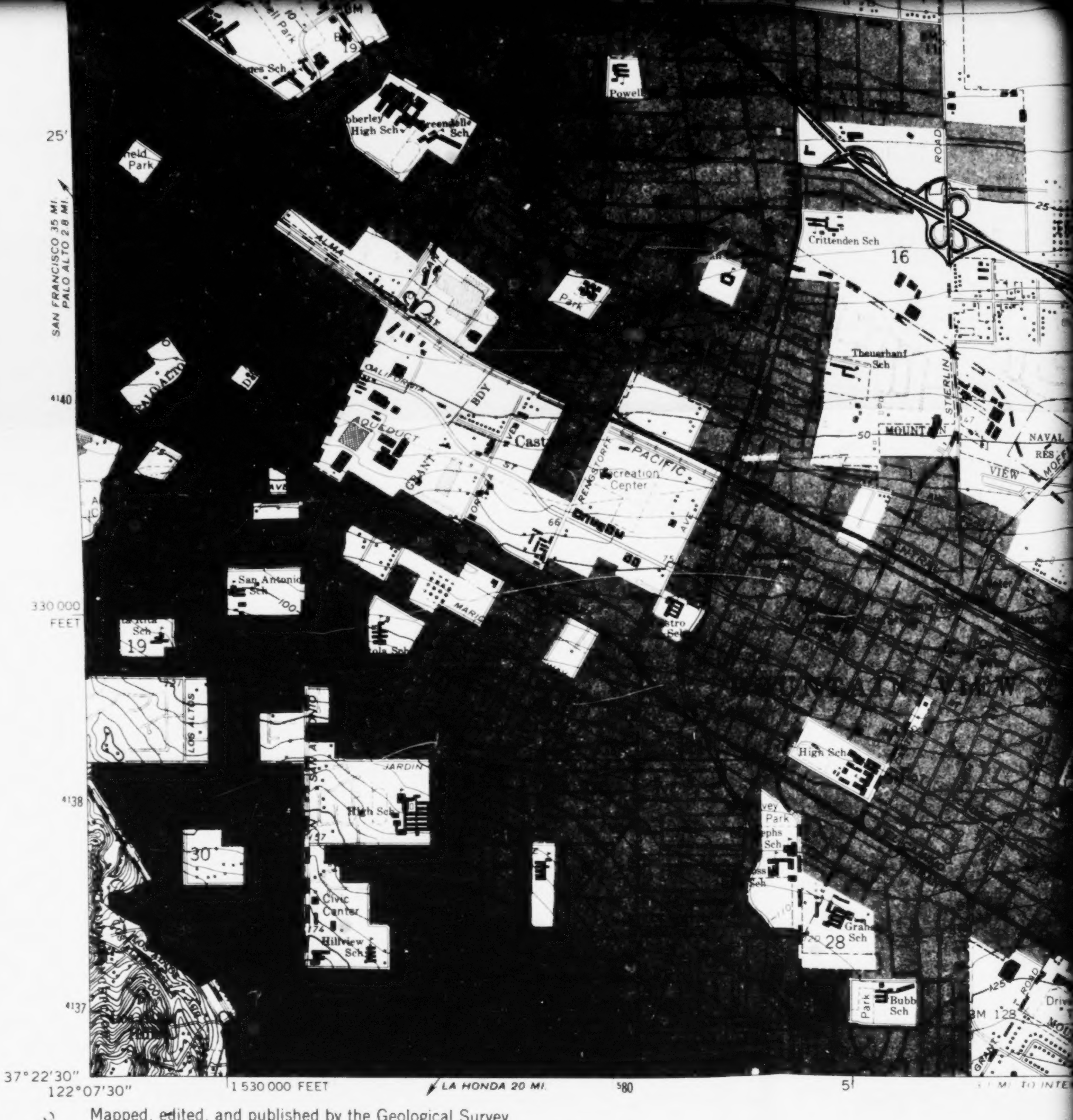
584
2'30"
585
R.2W.
R.1W.
1 560 000 FEET
588
122°00'
37°30'
SALT EVAPORATORS
FREMONT
4150
Mud
4149
MOWRY
SLOUGH
360 000
FEET
Duck Club
4148
SALT EVAPORATORS
Calaveras
Point
COYOTE
CREEK
4147
ALAMEDA CO
SANTA CLARA CO
FREMONT
ALVISO
CITY
CITY
BOUNDARY
BOUNDARY
12
6
Gaging Station
BM 12
6
6
BM 5
Well
Duck Club
ALVISO
27'30"
EVAPORATORS
ALVISO
SAN JOSE
4145
SLOUGH
BM 6


D-17
D-18
D-1
D-20
D-24
D-25
Mud
MENLO PARK CITY
PALO ALTO CITY
Sand Point
SAN MATEO CO
SANTA CLARA CO
San Francisquito Cr
PALO ALTO MUNICIPAL AIRPORT
PALO ALTO MUNICIPAL GOLF COURSE
Yacht Club
BM
BM 2
BM 3
BM 5
EMBARCADERO
RD
Sewage Disposal
Radio Facility
Drive-in Theater
Mayfield Slough
Charleston Slough
Mountain View Slough
PALO ALTO CITY BOUNDARY (APPROXIMATE)
MOUNTAIN VIEW CITY BOUNDARY
SAN FRANCISQUITO
SALT
BAYSHORE
FABIAN
FREEWAY
3 LANE
BOUNDARY
MOUNTAIN VIEW CITY
BM 1
BM 2 View
MOUNTAIN VIEW
9
10
16
5
ROAD
Mitchell Park
Park
Powell
Cubberley High Sch
Greendell Sch
Crittenden Sch
Theuerkauf Sch
ALMA
CALIFORNIA
BDY
PALO ALTO
BLVD
BM 36
27'30"
25'
T.5S
T.6S
4143
4140
SAN FRANCISCO 32 MI. WILLOW ROAD EXIT 2.1 MI.
1558 I NW (PALO ALTO)
SAN FRANCISCO 35 MI. PALO ALTO 2.8 MI.


D-18
D-19
D-20
D-21
D-25
MUD
Long Point
PALO ALTO CITY BOUNDARY (APPROXIMATE)
MOUNTAIN VIEW CITY BOUNDARY
SUNNYVALE CITY BOUNDARY
ALVISO
SAN JOS
Charleston Slough
Mountain View Slough
Jagel Slough
Devils Slough
Slough
FRANCISQUITO
SALT EVAPORATORS
SEA LEVEL
BOUNDARY
Sewage Disposal
MOUNTAIN VIEW CITY
BM 1
BM 2 View
MOUNTAIN VIEW CITY BOUNDARY
SUNNYVALE BOUNDARY
CITY BOUNDARY
NAVAL RESERVATION
GRANT
NAVAL AIR STATION
MOFFETT FIELD
P O S O L M I
AMES RESEARCH CENTER
NAVAL RES
Powell
Crittenden Sch
Theuerkauf Sch
ROAD
STIERLIN
BLVD
GRANT
BM 14
BM 15
BM 20
BM 35
BM 36
BM
9
10
16
12
6
5
15
25



Gaging Station
BM 12
27'30"
BM 5
Well
Duck Club
ALVISO SLOUGH
ALVISO
SAN JOSE
SUNNYVALE CITY BOUNDARY
SALT EVAPORATORS
BM 6
4145
Guadalupe Slough
Jagel Slough
Devils Slough
TORS
D-21
D-22
D-23
SAN JOSE
SUNNYVALE
CITY
CITY
Alviso
(MILPITAS)
1658 IV NW
ALVISO
SAN JOSE
BOUNDARY
BOUNDARY
4143
SALT EVAPORATORS
SUNNYVALE BOUNDARY
CITY BOUNDARY
NAVAL RESERVATION
BM -1
MOFFETT CHANNEL
(APPROXIMATE)
GRANT
4142
NAVAL AIR STATION
BM 14
BM 15
BM 15
PAOS OLMI
MOFFETT FIELD
BM 20
BM
Sewage Disposal
SUNNYVALE
CITY
25'
Baylands Park
4141
Fuel Oil
BOUNDARY
ROAD
N MATHILDA AVE
BOUNDARY
CROSSMAN ROAD
AVENUE
FREEWAY
4 LANE
237
SUNNYVALE
INTERSTATE 08
MILPITAS
JAGELS
GRANT
GRANT
BM 35


25'
SAN FRANCISCO 35 MI.
PALO ALTO 2.8 MI.
4140
330 000
FEET
4138
4137
37°22'30"
122°07'30"
1 530 000 FEET
LA HONDA 20 MI.
580
5
Powell
Crittenden Sch
16
Theuerkauf Sch
ALMA
CALIFORNIA
AQUEDUCT
Castro
PACIFIC
Recreation Center
San Antonio Sch
19
LOS ALTOS
JARDIN
High Sch
30
Civic Center
Hillview Sch
Grant Sch
28
Bubb Sch
Park
High Sch
Crittenden Sch
NAVAL RES
VIEW
MOUNTAIN VIEW

(MINDEGO HILL)
1558 I SW

Mapped, edited, and published by the Geological Survey
with cooperation by the California Department of Water Resources

Control by USGS and USC&GS

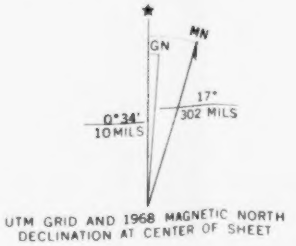
Topography from aerial photographs by photogrammetric methods
and by planetable surveys 1953. Aerial photographs taken 1948
Revised from aerial photographs by photogrammetric methods
and by planetable surveys 1961. Aerial photographs taken 1960

Selected hydrographic data compiled from USC&GS Chart 5531 (1959)
This information is not intended for navigational purposes

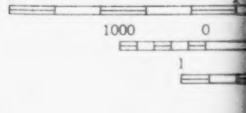
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

Red tint indicates areas in which only landmark buildings are shown
Dashed land lines indicate approximate locations
This map lies within a subsidence area

Areas covered by dashed light-blue pattern are subject
to controlled inundation

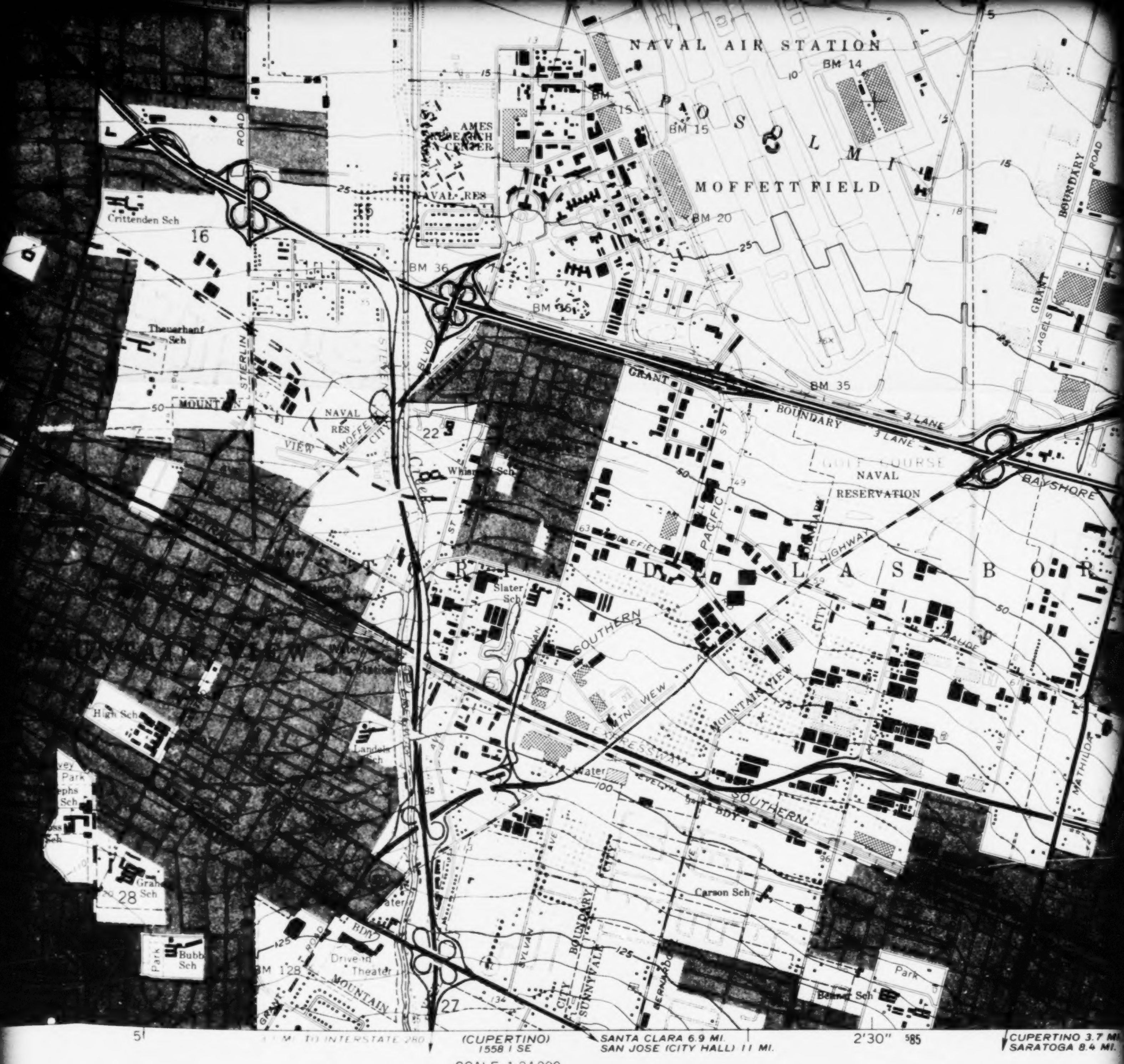

GN
MN
0°34'
10 MILS
17°
302 MILS

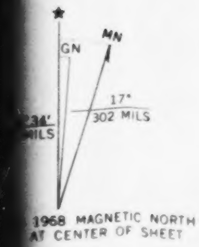
UTM GRID AND 1968 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



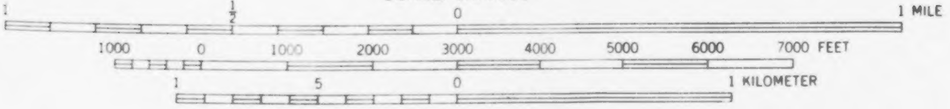
DEPTH CURVE
SHORELINE

THIS M
FOR SALE BY U. S. GEOLOG
A FOLDER DESCRIB


NAVAL AIR STATION
MOFFETT FIELD
AMES RESEARCH CENTER
NAVAL RES
Crittenden Sch
Theuerkauf Sch
Whisman Sch
Slater Sch
High Sch
Landels Sch
Graham Sch
Bubb Sch
Drive-in Theater
Carson Sch
Beaver Sch
GOLF COURSE
NAVAL RESERVATION
MOUNTAIN VIEW
BAYSHORE
SOUTHERN PACIFIC
EXPRESSWAY
BM 14
BM 15
BM 20
BM 36
BM 35
BM 128
5
TO INTERSTATE 280
(CUPERTINO)
1558 I SE
SANTA CLARA 6.9 MI.
SAN JOSE (CITY HALL) 11 MI.
2'30"
585
CUPERTINO 3.7 MI
SARATOGA 8.4 MI.


GN
MN
17°
302 MILS
2°34'
MILS
1968 MAGNETIC NORTH
AT CENTER OF SHEET

SCALE 1:24000


1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
.5
0
1 KILOMETER

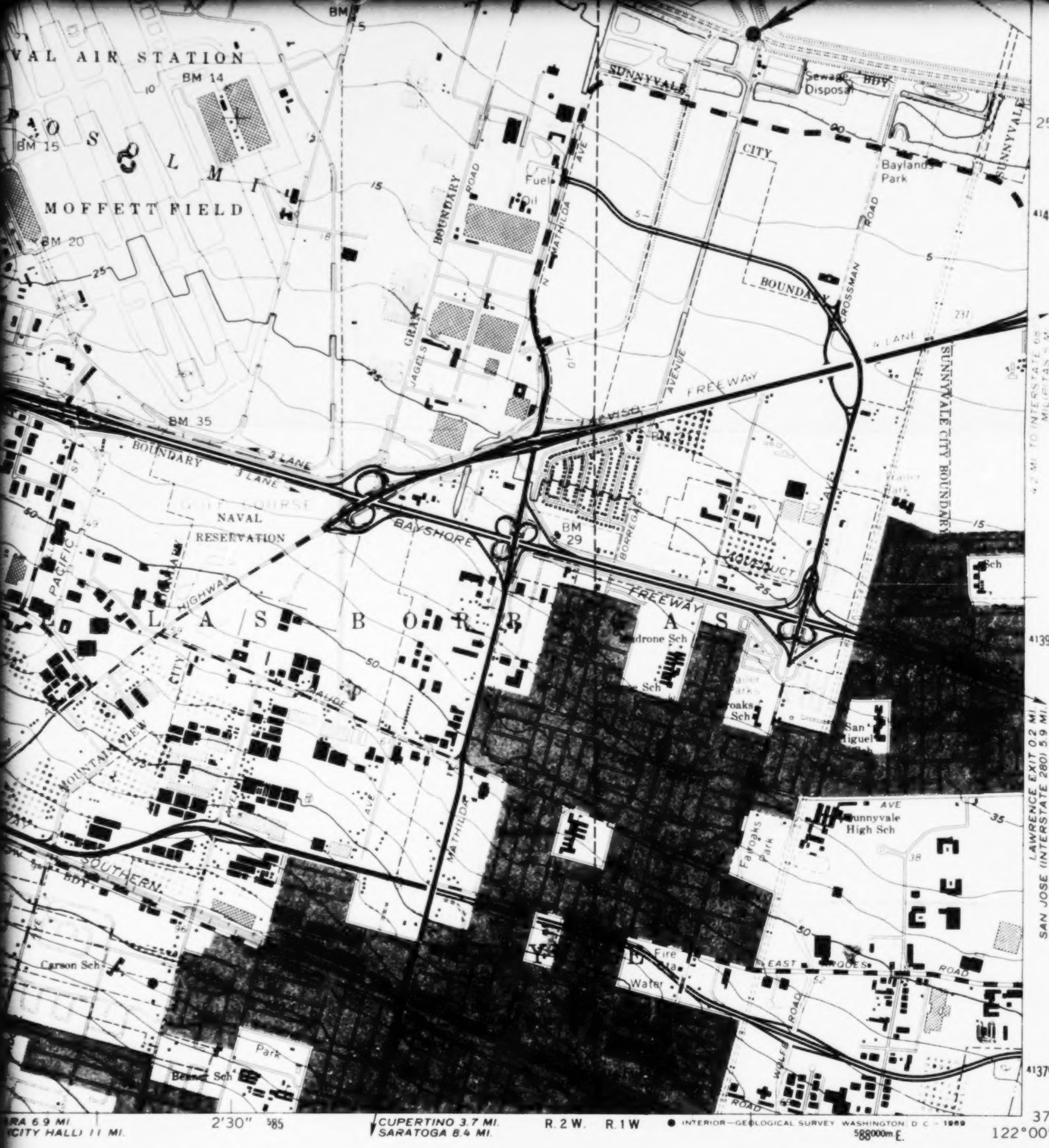
CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 5 FEET

QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR WASHINGTON, D.C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purple comp
taken 1968. This information

Purple tint indicates extension o


NAVAL AIR STATION
MOFFETT FIELD
BM 14
BM 15
BM 20
BM 35
BM 29
SUNNYVALE
Sewage Disposal
BDY
CITY
BOUNDARY
Baylands Park
Fuel Oil
N MATHILDA AVE
BOUNDARY ROAD
GRANT
JAGELS
CROSSMAN ROAD
AVENUE
FREEWAY
4 LANE
3 LANE
NAVAL RESERVATION
GOLF COURSE
BAYSHORE
BORREGAS
AQUEDUCT
HIGHWAY
PACIFIC
LAS BORREGAS
Madrone Sch
Fairoaks Sch
San Miguel Sch
Sunnyvale High Sch
Fairoaks Park
MOUNTAIN VIEW CITY
SOUTHERN
BDY
MATHILDA
Carson Sch
Bennet Sch
Park
Fire Sta
Water
EAST
ROAD
WOLFE ROAD
SUNNYVALE CITY BOUNDARY
4.2 MI. TO INTERSTATE 680 MILPITAS 5 MI.
LAWRENCE EXIT 0.2 MI. SAN JOSE (INTERSTATE 280) 5.9 MI.
25'
4141
4139
4137000m N.
37°22'30"
122°00'
588000m E.
585
2'30"
ARA 6.9 MI
(CITY HALL) 11 MI.
CUPERTINO 3.7 MI.
SARATOGA 8.4 MI.
R. 2 W.
R. 1 W.
INTERIOR—GEOLOGICAL SURVEY WASHINGTON, D. C.—1969
Sch

(SAN JOSE WEST)
1658 IV SW

1 MILE

6000 7000 FEET

1 KILOMETER

Figure 61.

LOW WATER
M WATER

QUADRANGLE LOCATION

NDARDS
R WASHINGTON, D. C. 20242
ABLE ON REQUEST

Revisions shown in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban areas

MOUNTAIN VIEW, CALIF.
NE/4 PALO ALTO 15' QUADRANGLE
N3722.5—W12200/7.5

1961
PHOTOREVISED 1968
AMS 1558 I NE—SERIES V895

D-19	April -	The outflow from these waterways was a gray-brown color. There was no measureable plume in San Francisco Bay.
D-20	July -	The water in this ditch was gold in color. There was no visible outflow from this ditch.
D-21	July -	The water in this ditch was a very dark brown in color. There was no visible outflow from this ditch.
D-22	July -	These three evaporator areas were supporting extensive matted algal growth which appeared as dark green in color.
D-23	April - & July	The outfall for the Sunnyvale STP was located here. The canal that borders the Naval reservation and the Moffett Channel exhibited characteristics of being nearly septic and supported extensive algal growth. This facility had a discharge flow rate of 53.00 Kcmd (14 mgd).
D-24	April - & July	There was no visible signs of the outfall of the City of Los Altos STP during either mission. It reportedly had a discharge flow rate of 9.10 Kcmd (2.4 mgd).
D-25	April - & July	There was no visible signs of the outfall of the City of Mountain View STP during either mission. It reportedly had a discharge flow rate of 28.00 Kcmd (7.4 mgd).

NOTE: Indications numbers D-26 through D-31 appear on Figure 62, the Milpitas map.

D-26 April & July - The discharge from the Union SD Irvington STP was not visible during either mission. There was no apparent discoloration in Mud Slough resulting from this STP. This facility reportedly had a discharge flow rate of 20.82 Kcmd (5.5 mgd).

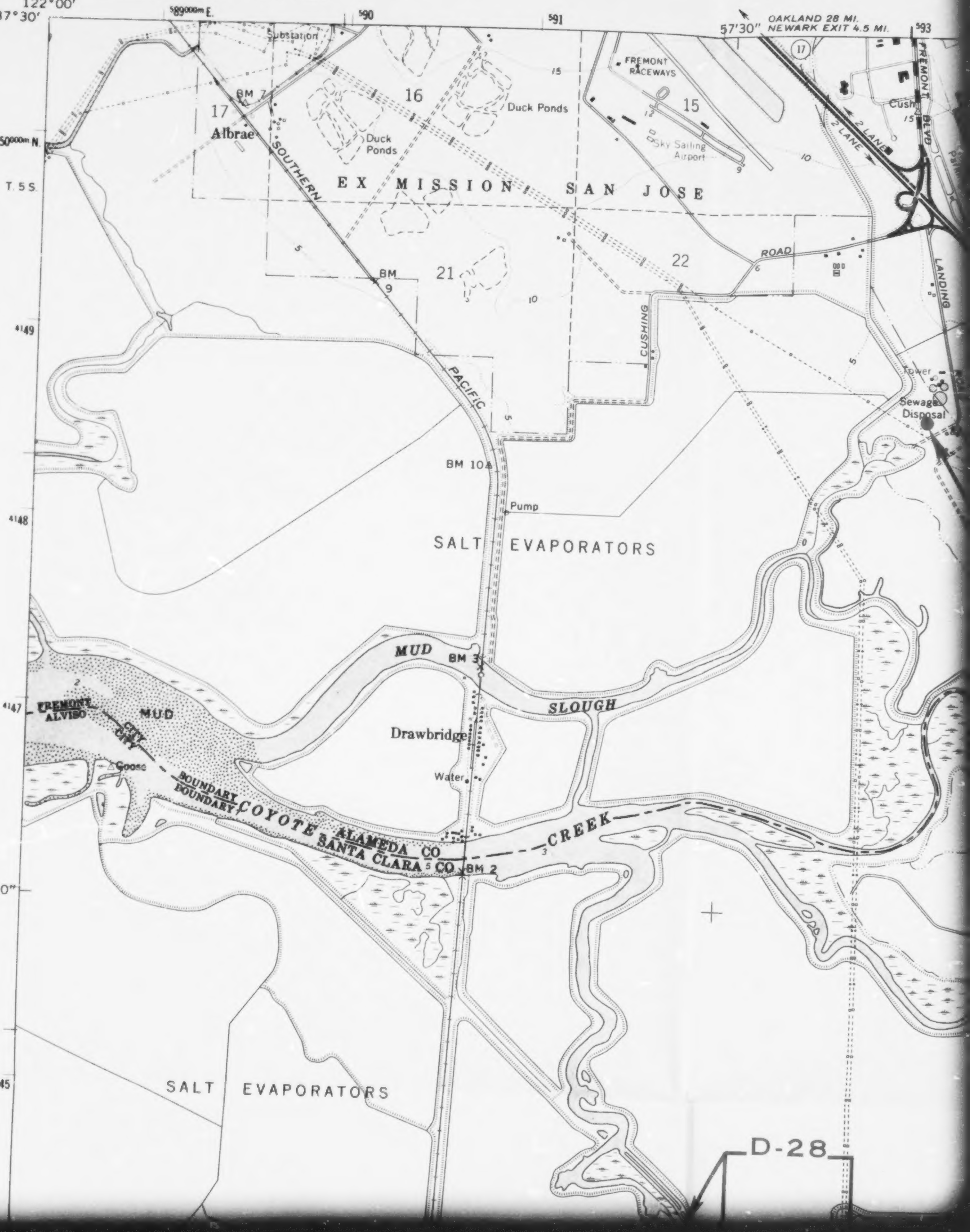
D-27 April & July - There was, likewise, no apparent signs of the Milpitas STP discharge in the reconnaissance data. It reportedly had a discharge flow rate of 10.75 Kcmd (2.84 mgd).

D-28 April - The arrows indicate the facility and the discharge canal for the San Jose-Santa Clara STP. There was no discoloration observed in Coyote Creek resulting from this discharge. The discharge flow rate of this facility reportedly was 313.40 Kcmd (82.2 mgd).

July - There was definite discoloration in the discharge canal during this mission. The upper-most arrow on D-28 points to the leading edge of the discolored plume within the canal. The thermal imagery recorded the water within the canal as being warmer than that in Coyote Creek. This is shown in Figure 63.

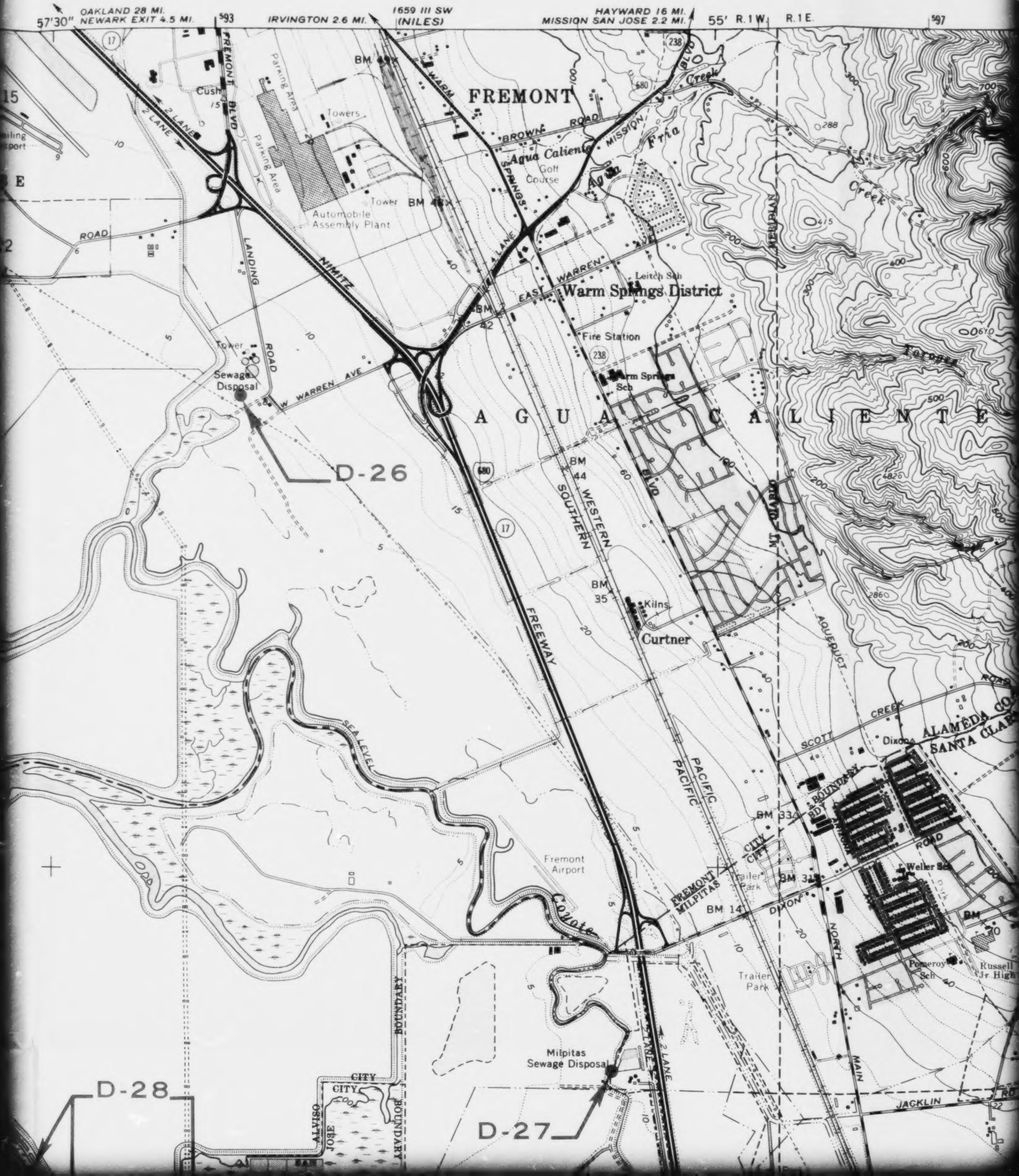
1559 II SE
(NEWARK)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



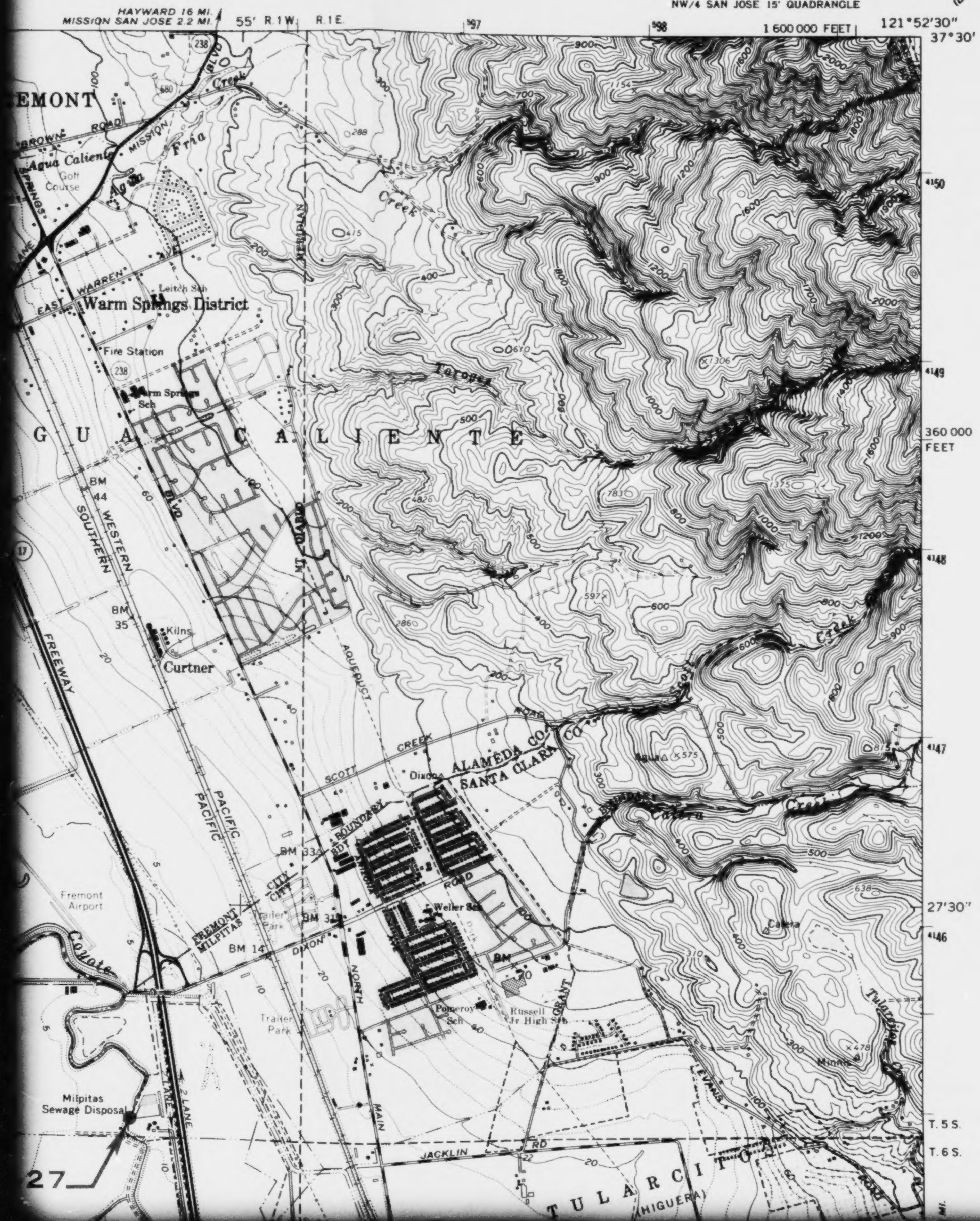
122°00'
37°30'
589000m E.
590
591
57'30"
OAKLAND 28 MI.
NEWARK EXIT 4.5 MI.
593
4150000m N.
T. 5 S.
4149
4148
4147
27'30"
4145
Substation
FREMONT RACEWAYS
17
BM 7
16
15
Duck Ponds
Albrae
Duck Ponds
Sky Sailing Airport
2 LANE
2 LANE
FREMONT BLVD
Cush
EX MISSION SAN JOSE
SOUTHERN
PACIFIC
BM 9
21
22
ROAD
CUSHING
LANDING
Tower
Sewage Disposal
BM 10
Pump
SALT EVAPORATORS
MUD
SLOUGH
BM 3
Drawbridge
Water
FREMONT
ALVISO
CITY
CITY
MUD
Goose
BOUNDARY
BOUNDARY
COYOTE
CREEK
ALAMEDA CO
SANTA CLARA CO
BM 2
SALT EVAPORATORS
D-28

78-A

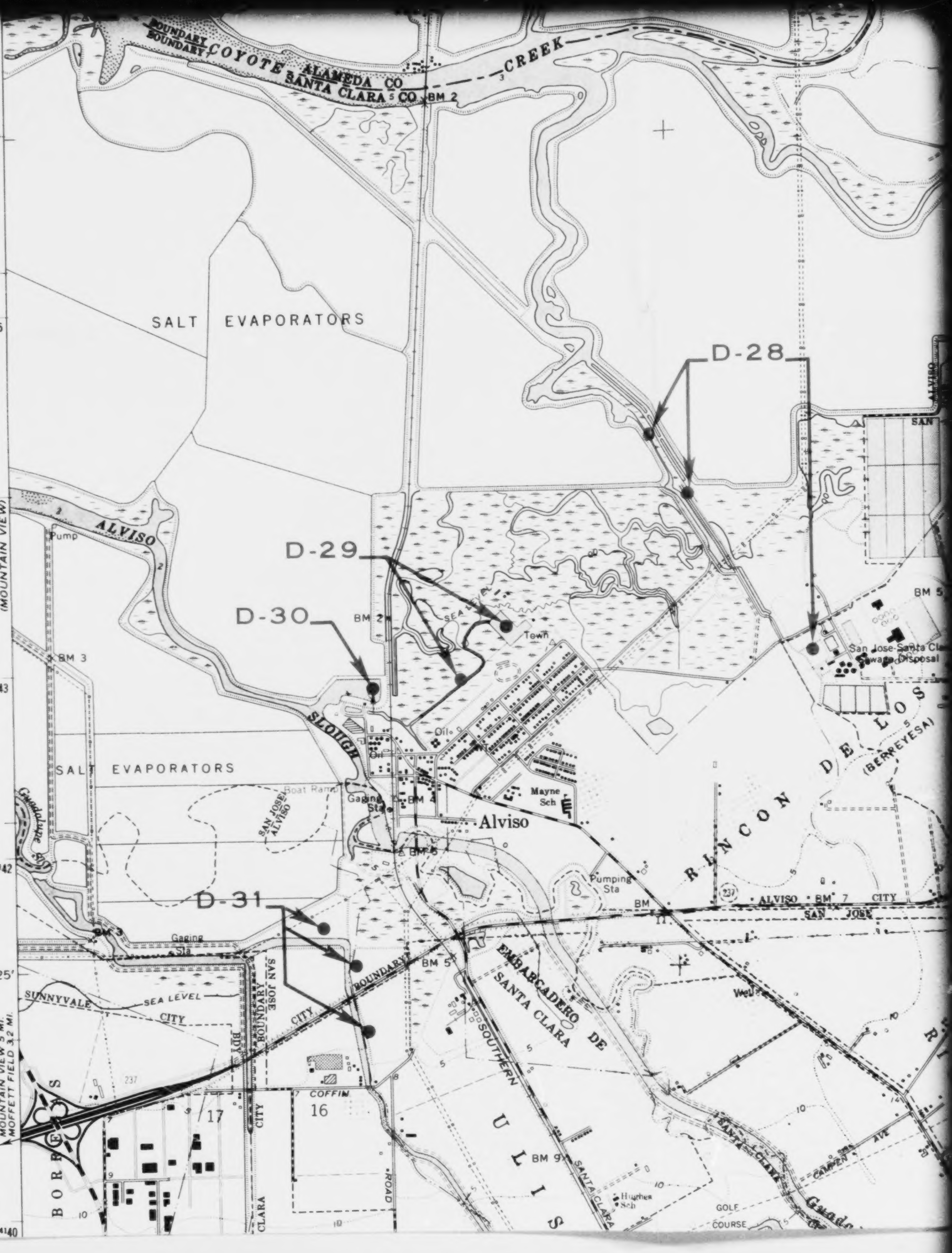

OAKLAND 28 MI.
NEWARK EXIT 4.5 MI.
57'30"
593
IRVINGTON 2.6 MI.
1659 III SW
(NILES)
HAYWARD 16 MI.
MISSION SAN JOSE 2.2 MI.
55'
R.1W.
R.1E.
597
17
238
680
FREMONT
FREMONT BLVD
Cush
2 LANE
Parking Area
Towers
Tower
BM 49
BM 46
Automobile Assembly Plant
WARM SPRINGS
BROWN ROAD
Agua Caliente
MISSION BLVD
Agua Fria Creek
Golf Course
Creek
MERIDIAN
ROAD
LANDING ROAD
NIMITZ
EAST WARREN
Leitch Sch
Warm Springs District
BM 42
Fire Station
Warm Springs Sch
Tower
Sewage Disposal
W WARREN AVE
AGUA CALIENTE
Toroges
D-26
BM 44
SOUTHERN
WESTERN
BLVD
MT. DIABLO
BM 35
Kilns
Curtner
FREEWAY
AQUEDUCT
SEA LEVEL
SCOTT CREEK ROAD
Dixon
ALAMEDA CO
SANTA CLAR
PACIFIC
PACIFIC
BOUNDARY
BDY
CITY
BM 33
BM 31
BM 14
FREMONT
MILPITAS
Trailer Park
DIXON
ROAD
Weller Sch
Fremont Airport
Coyote
NORTH MAIN
Trailer Park
Pomeroy Sch
Russell Jr High
Milpitas Sewage Disposal
2 LANE
JACKLIN RD
CITY
BOUNDARY
ALVISO
JOSE
D-28
D-27

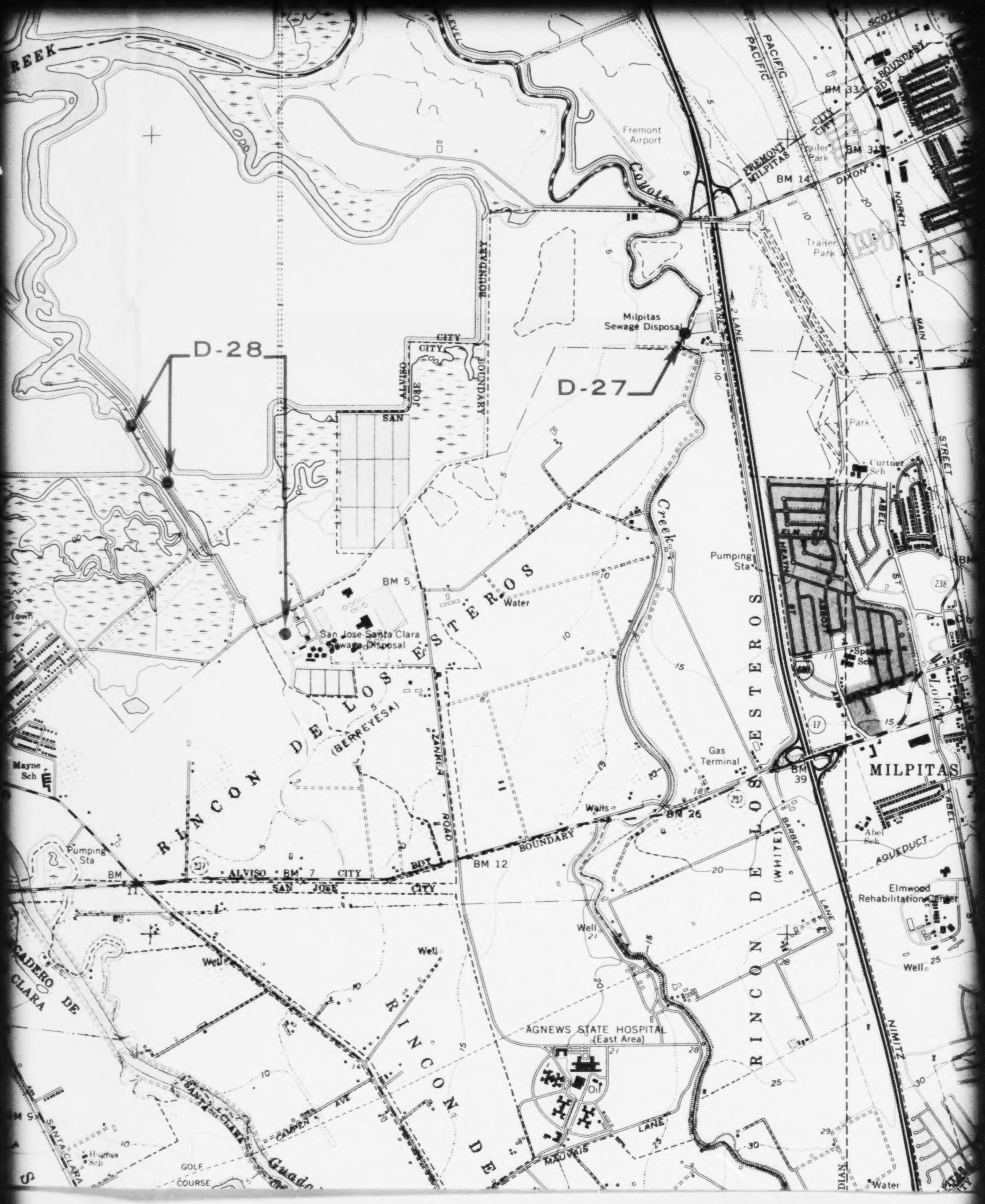
MILPITAS QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 SAN JOSE 15' QUADRANGLE

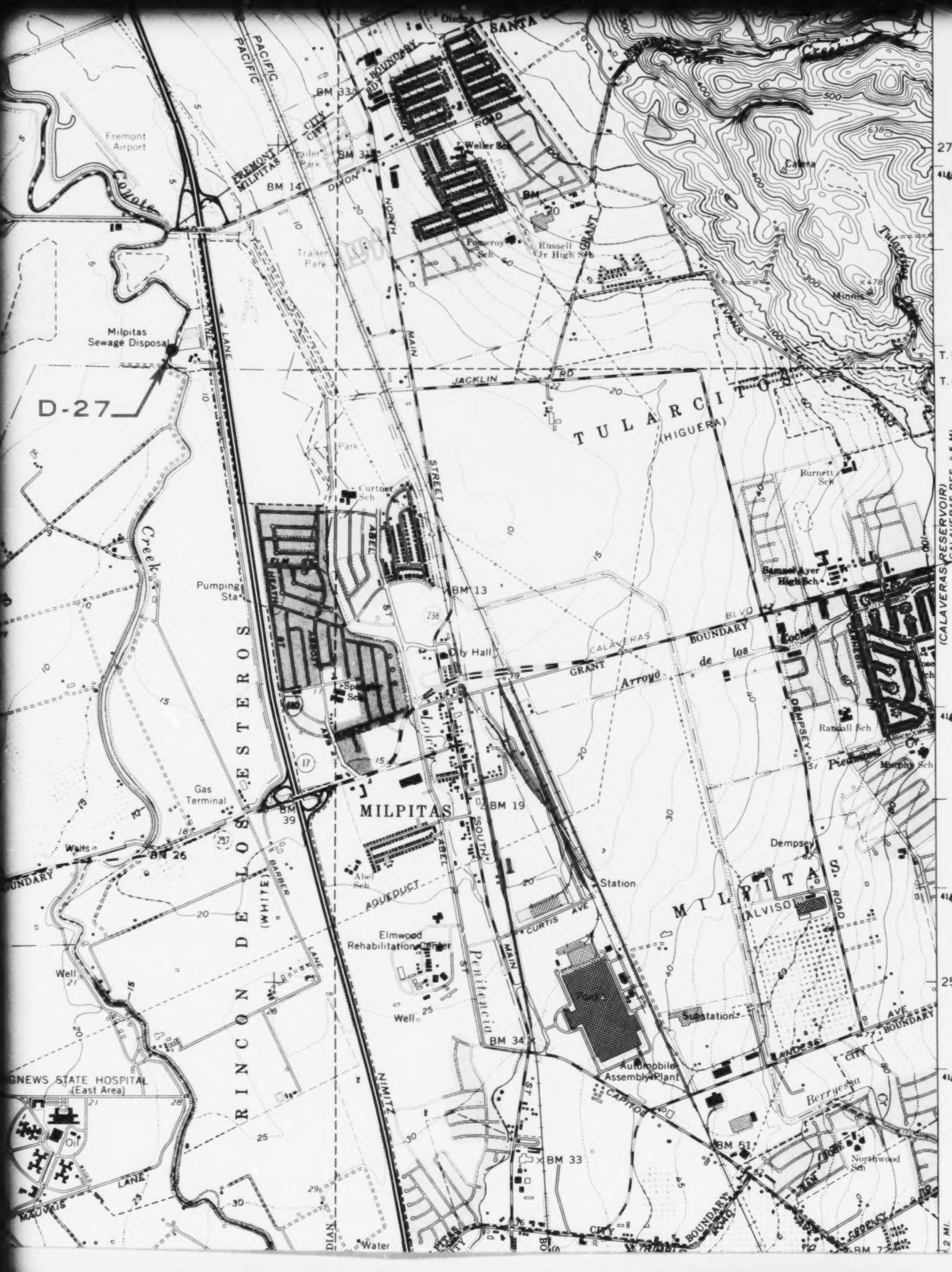
1659 III SE
(LA COSTA VALLEY)



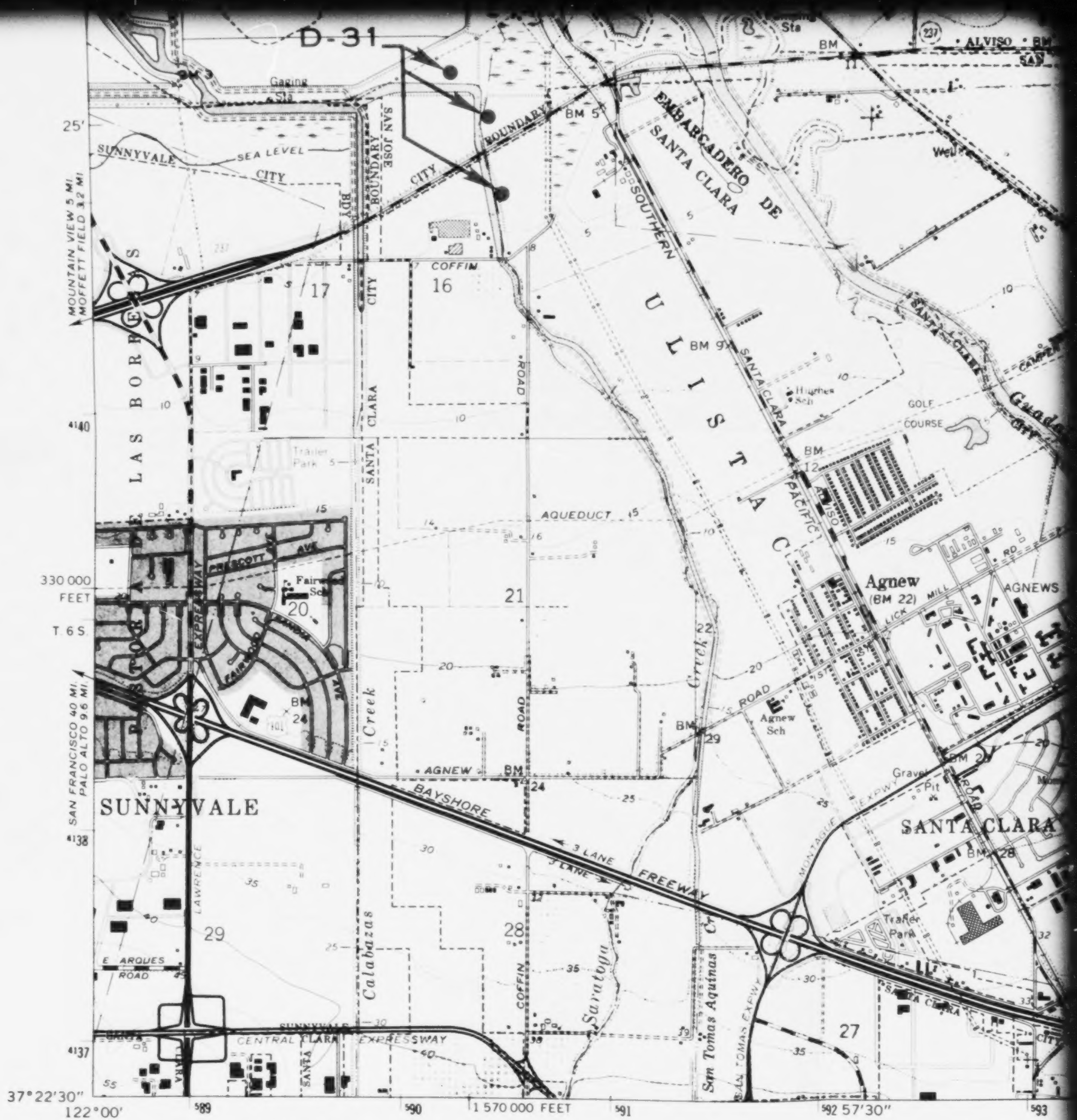
HAYWARD 16 MI.
MISSION SAN JOSE 2.2 MI.
55'
R.1W.
R.1E.
597
598
1 600 000 FEET
121°52'30"
37°30'
EMONT
BROWN
ROAD
MISSION
BLVD
Creek
Fria
Agua Caliente
Agua
Golf Course
SPRINGS
LANE
WARREN
EAST
AVE
Leitch Sch
Warm Springs District
Fire Station
238
680
Warm Springs Sch
MERIDIAN
Toroges
Creek
A G U A   C A L I E N T E
BM 44
SOUTHERN
WESTERN
BLVD
MT. DIABLO
17
BM 35
Kilns
Curtner
FREEWAY
AQUEDUCT
SCOTT
CREEK
ROAD
Dixon
ALAMEDA CO
SANTA CLARA CO
BOUNDARY
Agua
Calera
Creek
PACIFIC
PACIFIC
BM 33
CITY
Trailer Park
BM 31
Weller Sch
ROAD
FREMONT
MILPITAS
BM 14
DIXON
Fremont Airport
Coyote
NORTH
Pomeroy Sch
Russell Jr High Sch
GRANT
Trailer Park
Calera
Minnis
Tularcitos
EVANS
Milpitas Sewage Disposal
2 LANE
MAIN
JACKLIN
RD
22
T U L A R C I T O S
(HIGUERA)
T. 5 S.
T. 6 S.
4150
4149
4148
4147
4146
360 000 FEET
27'30"
1600
1800
2000
1200
1700
1306
1375
783
670
597
575
638
478
310
288
415
482
286
154
813
27


D-28
D-29
D-30
D-31
SALT EVAPORATORS
SALT EVAPORATORS
COYOTE CREEK
ALAMEDA CO
SANTA CLARA CO
BOUNDARY
BOUNDARY
BM 2
27'30"
4145
4143
4142
4140
25'
1558 I NE
(MOUNTAIN VIEW)
ALVISO
SLOUGH
Pump
BM 3
BM 2
Town
Oil
Oil
Boat Ramp
Gaging Sta
BM 4
Alviso
Mayne Sch
SAN JOSE ALVISO
BM 5
Pumping Sta
BM
RINCON DE LOS
(BERREYESA)
San Jose-Santa Clara Sewage Disposal
BM 5
ALVISO
SAN
ALVISO
BM 7
CITY
SAN JOSE
237
Guadalupe Slough
BM 3
Gaging Sta
SUNNYVALE
SEA LEVEL
CITY
BOUNDARY
CITY
BDY
SAN JOSE BOUNDARY
CITY
CLARA
BM 5
EMBARCADERO DE SANTA CLARA
SOUTHERN
Well
COFFIN
16
17
237
ROAD
ULISES
BM 9
SANTA CLARA
Hughes Sch
GOLF COURSE
SANTA CLARA
CAMPEN AVE
Guadalupe
BORREGAS
MOUNTAIN VIEW 5 MI.
MOFFETT FIELD 3.2 MI.


D-28
D-27
CREEK
Fremont Airport
Coyote
Creek
Milpitas Sewage Disposal
San Jose-Santa Clara Sewage Disposal
ALVISO
SAN JOSE
CITY
BOUNDARY
RINCON DE LOS ESTEROS
(BERREYESA)
RINCON DE LOS ESTEROS
(WHITE)
RINCON DE
Water
Pumping Sta
Gas Terminal
Wells
BM 5
BM 7
BM 12
BM 26
BM 39
BM 14
BM 31
BM 33
FREMONT
MILPITAS
CITY
BDY
PACIFIC
Trailer Park
DIXON
NORTH
MAIN
STREET
ABEL
Curtner Sch
Spangler Sch
Park
MILPITAS
Abel Sch
AQUEDUCT
Elmwood Rehabilitation Center
Well
ZANKER ROAD
BARBER LANE
NIMITZ
AGNEWS STATE HOSPITAL
(East Area)
Oil
LANE
MAUVAIS
CAMPEN AVE
SANTA CLARA
Guadalupe
GOLF COURSE
Hughes Sch
Mayne Sch
Town
EMBARCADERO DE SANTA CLARA
237
238
17
680



D-27
Milpitas Sewage Disposal
Fremont Airport
Coyote
Creek
PACIFIC
FREMONT MILPITAS
CITY
BOUNDARY
SANTA
Weller Sch
Pomeroy Sch
Russell Jr High Sch
Trailer Park
GRANT
NORTH MAIN STREET
DIXON ROAD
JACKLIN RD
EVANS
TULARCITOS
(HIGUERA)
Calera
Minnie
Tularcitos Cr
T. 5 S.
T. 6 S.
27'30"
4146
Curtner Sch
Park
ABEL ST
ELM
HEATH
Pumping Sta
BM 13
238
City Hall
CALAVERAS BLVD
BOUNDARY
GRANT
Arroyo de los
Burnett Sch
Samuel Ayer High Sch
Randall Sch
Piedmont Cr
Murphy Sch
DEMPSEY ROAD
(CALAVERAS RESERVOIR) CALAVERAS RES. 4.5 MI.
1658 IV NE
4143
RINCON DE LOS ESTEROS
(WHITE)
BARBER LANE
Spangler Sch
680
17
Gas Terminal
BM 39
237
MILPITAS
BM 19
SOUTH
Abel Sch
AQUEDUCT
Station
Dempsey
MILPITAS
ALVISO
4142
Wells
BM 26
BOUNDARY
CURTIS AVE
Elmwood Rehabilitation Center
Penitencia
MAIN ST
Well
Substation
LANDESS AVE
CITY BOUNDARY
25'
BM 34
Automobile Assembly Plant
CAPITOL
Berryessa Cr
4141
AGNEWS STATE HOSPITAL (East Area)
Oil
LANE
MAUVAIS
NIMITZ
MERIDIAN
Water
BM 33
BM 51
Northwood Sch
BOUNDARY ROAD
CITY
BM 72
2 LANE


D-31
Gaging Sta
SUNNYVALE
SEA LEVEL
CITY
BOUNDARY
SAN JOSE
CITY BOUNDARY
BDY
EMBARCADERO DE SANTA CLARA
SOUTHERN PACIFIC
ALVISO
BM 5
BM 9
BM 12
BM 22
BM 24
BM 29
BM 28
Well
MOUNTAIN VIEW 5 MI.
MOFFETT FIELD 3.2 MI.
LAS BORREGAS
ULISTAC
COFFIN
16
17
20
21
22
24
27
28
29
ROAD
SANTA CLARA
CITY
Hughes Sch
GOLF COURSE
Trailer Park
AQUEDUCT
PRESCOTT AVE
EXPRESSWAY
Fairwood Sch
FAIRWOOD
Agnew
(BM 22)
LICK MILL RD
AGNEWS
Agnew Sch
AGNEW
Calabazas Creek
BAYSHORE FREEWAY
3 LANE
SAN FRANCISCO 40 MI.
PALO ALTO 9.6 MI.
SUNNYVALE
LAWRENCE
Gravel Pit
MONTAGUE EXPWY
SANTA CLARA
Trailer Park
E ARQUES ROAD
CENTRAL EXPRESSWAY
Saratoga
San Tomas Aquinas Cr
SAN TOMAS EXPWY
330 000 FEET
T. 6 S.
25'
4140
4138
4137
37°22'30"
122°00'
589
590
1 570 000 FEET
591
592 57'30"
593

(CUPERTINO)
1558 I SE

Mapped, edited, and published by the Geological Survey with cooperation by the California Department of Water Resources

Control by USGS, USC&GS, and Alameda County

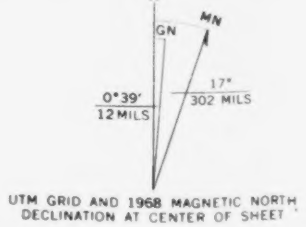
Topography from aerial photographs by photogrammetric methods and by planetable surveys 1953. Aerial photographs taken 1948
Revised from aerial photographs and by planetable surveys 1961
Aerial photographs taken 1960

Selected hydrography compiled from USC&GS Chart 5531 (1960)
This information is not intended for navigational purposes

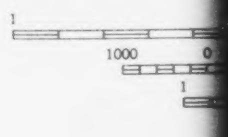
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 3
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

Dashed land lines indicate approximate locations
Fine red dashed lines indicate selected fence lines
Red tint indicates areas in which only landmark buildings are shown

A portion of this map lies within a subsidence area

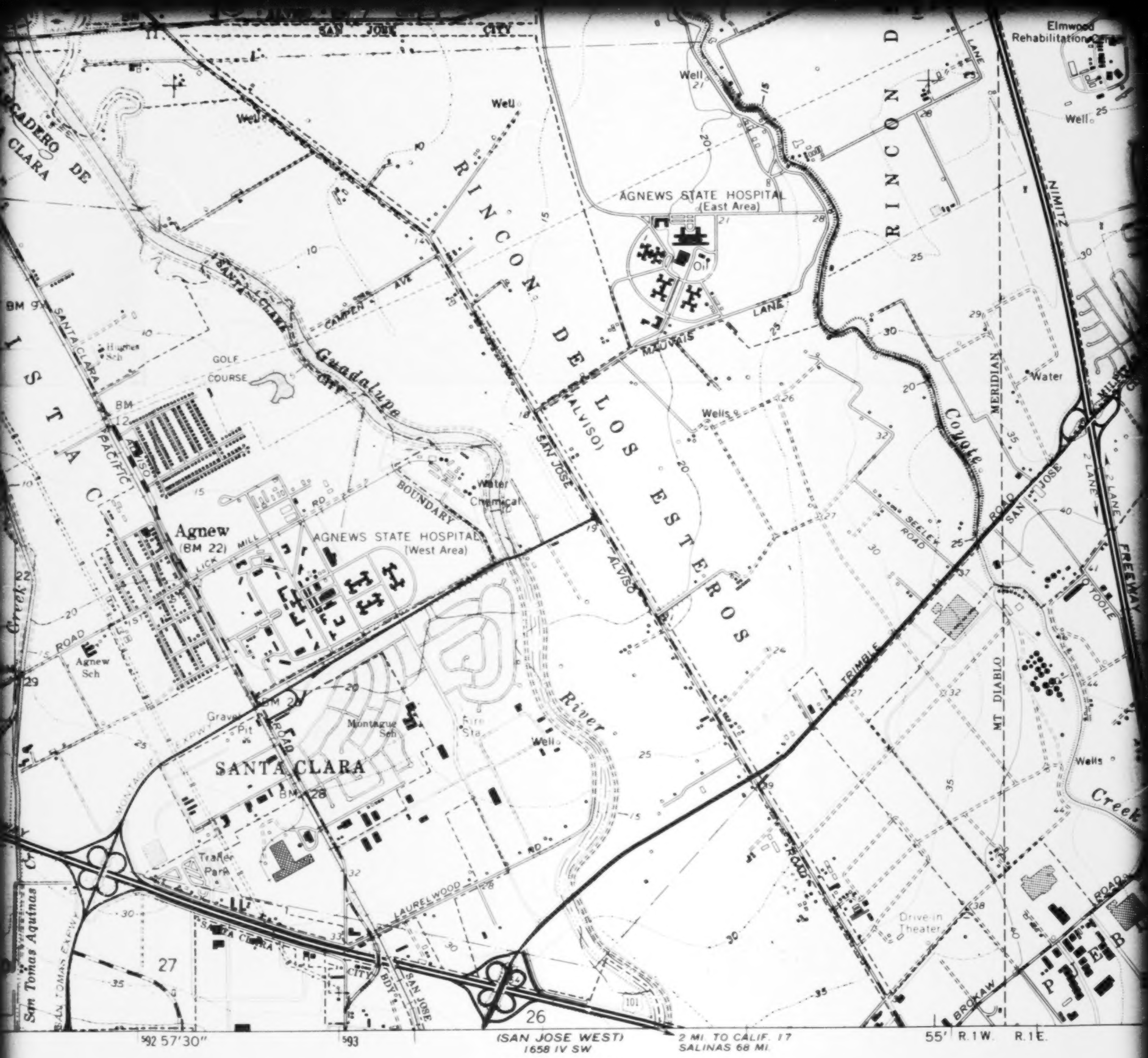

GN
MN
0°39'
12 MILS
17°
302 MILS

UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

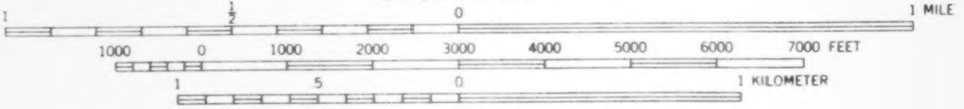


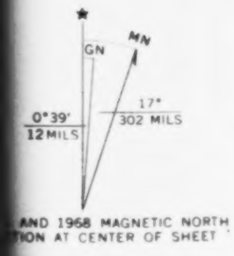
SO
SHOR

THIS
FOR SALE BY U. S. GEOL
A FOLDER DESC


Elmwood Rehabilitation Center
RINCON DE LOS ESTEROS
AGNEWS STATE HOSPITAL (East Area)
AGNEWS STATE HOSPITAL (West Area)
Agnew (BM 22)
SANTA CLARA
Guadalupe River
Coyote Creek
Montague Sch
Agnew Sch
Fire Sta
Trailer Park
Drive-in Theater
GOLF COURSE
Water Chemical
Wells
Oil
CAMPEN AVE
MAUVAIS LANE
SAN JOSE (ALVISO) ALVISO RD
TRIMBLE ROAD
SEELEY ROAD
MT DIABLO MERIDIAN
NIMITZ FREEWAY
LAURELWOOD
BROKAW
MONTAGUE EXPWY
San Tomas Aquinas
SAN TOMAS EXPWY
SOUTHERN PACIFIC
101
27
26
592 57'30"
593
(SAN JOSE WEST)
1658 IV SW
2 MI. TO CALIF. 17
SALINAS 68 MI.
55' R.1W. R.1E.

SCALE 1:24000


1
½
0
1 MILE
1000
0
1000
2000
3000
4000
5000
6000
7000 FEET
1
.5
0
1 KILOMETER


★
GN
MN
0°39'
12 MILS
17°
302 MILS
AND 1968 MAGNETIC NORTH
TION AT CENTER OF SHEET

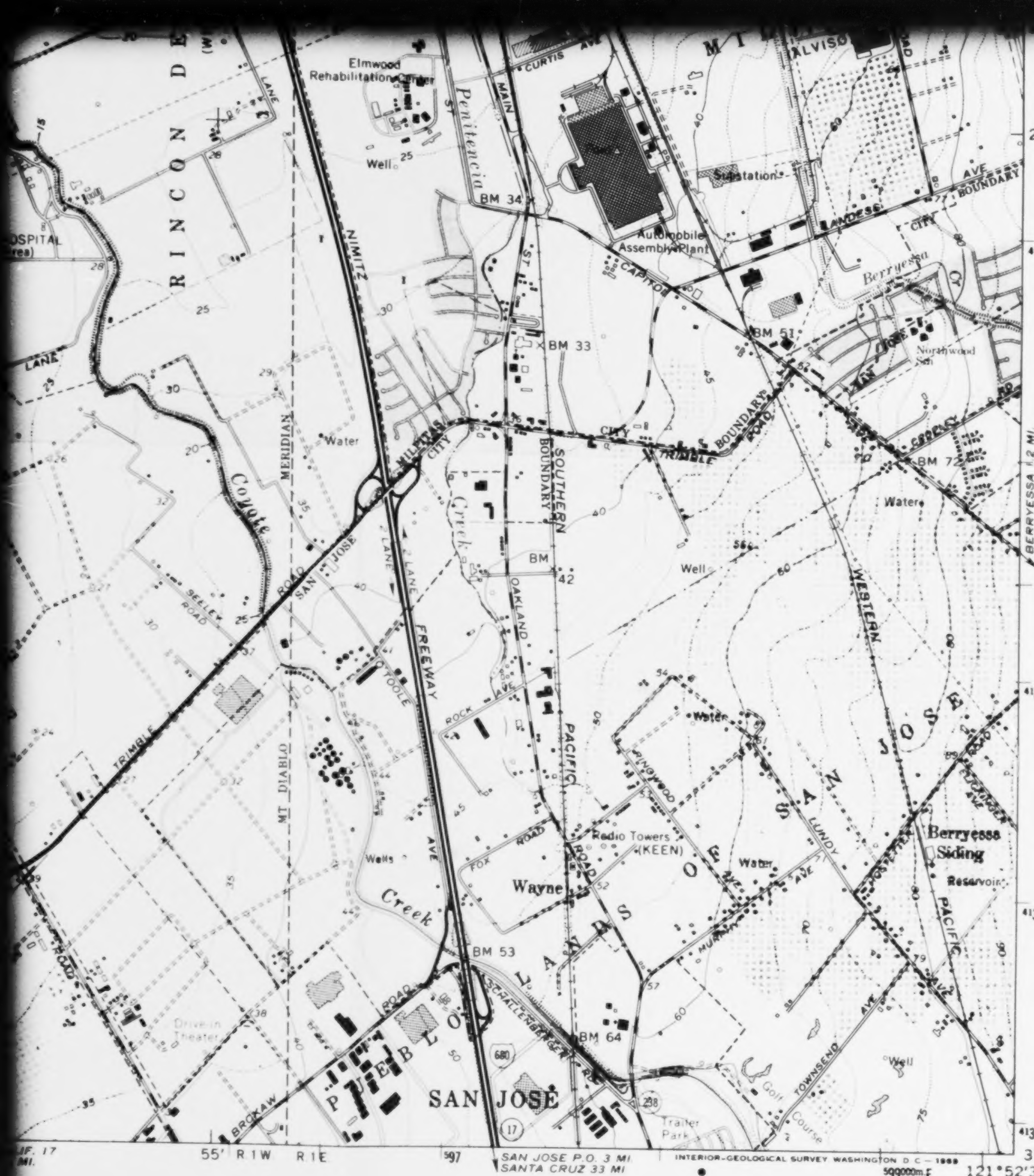
CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
SOUNDINGS IN FEET— DATUM IS MEAN LOWER LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 5 FEET

CALIF
QUADRANGLE LOCA

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purp
taken 1968. This info

Purple tint indicates ex


Elmwood Rehabilitation Center
Well
Penitencia
MAIN ST
CURTIS AVE
ALVISO
Substation
Automobile Assembly Plant
BM 34
CAPITOL
LANDESS AVE
CITY BOUNDARY
Berryessa Cr
Northwood Sch
BM 51
BM 33
BM 72
RINCON DE
HOSPITAL
NIMITZ
MILPITAS
CITY
BOUNDARY
TRIMBLE
ROAD
SOUTHERN
Water
Coyote
MERIDIAN
SAN JOSE ROAD
SEELEY ROAD
LANE
Creek
BM 42
OAKLAND
Well
WESTERN
BERRYESSA 1.2 MI.
TOOLE
FREEWAY
ROCK AVE
PACIFIC
SAN JOSE
MT DIABLO
RINGWOOD
Radio Towers (KEEN)
FOX ROAD
Wayne
Wells
Creek
LUNDY
Berryessa Siding
Reservoir
BM 53
SCHALLENBERGER
OF
LANDS
PUEBLO
SAN JOSE
BM 64
680
17
238
Drive-in Theater
Golf Course
Trailer Park
TOWNSEND AVE
BROKAW
25′
4141
4139
4138
4137000m N.
37°22′30″
121°52′30″
599000m E.
55′
R 1 W
R 1 E
597
SAN JOSE P.O. 3 MI.
SANTA CRUZ 33 MI
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D C—1968

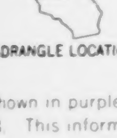
1 MILE

7000 FEET

1 KILOMETER

(SAN JOSE EAST) 1658 IV SE

Figure 62.



QUADRANGLE LOCATION

ER

OS
ASHINGTON, D. C. 20242
ON REQUEST

Revisions shown in purple compiled from aerial photographs taken 1968. This information not field checked

Purple tint indicates extension of urban areas

MILPITAS, CALIF.
NW/4 SAN JOSE 15′ QUADRANGLE
N3722.5—W12152.5/7.5

1961
PHOTOREVISED 1968
AMS 1658 IV NW—SERIES V895

D-29	July -	The water in the geometrically shaped pond was very dark. The contents of the pond were being discharged to the ditch, shown in red in Figure 62. The water in this ditch displayed characteristics of low dissolved oxygen levels.
D-30	July -	This is the point where the ditch, discussed in D-29, discharges into the small harbor area and subsequently into Alviso Slough. There was no significant discoloration in the Slough resulting from this discharge.
D-31	July -	High concentrations of algal blooms were detected in this area of San Tomas Aquinas Creek.

All of the point discharges recorded over the Bay area were discussed in the four sections given above. At this time it is appropriate to discuss the overall profile of the Bay area waters. This is divided into two classes:

a) optical characterization (visible or true color)

b) thermal characterization.

Each of the two items will be discussed in the following paragraphs:

i) Characterization of the Bay Area Waters - April 1972.

The general color traits at the time of flight, are presented for the various sections of the Bay area.

Section A - San Pablo Bay was generally gray-brown in color with no sharp variations in color except in the Mare Island-Davis Point area where marked changes were recorded.

Carquinez Strait exhibited a red-brown color with regions of very sharp changes in color. The discoloration in the water was due to high levels of turbidity. At the time of flight, there was an extremely dark brown substance floating on the surface of the water. It appeared in clumps rather than being spread over large areas. One large clump located near Mare Island contained a chlorophyllic plant growth. This dark substance was traced through Suisun Bay into the Sacramento River. None was observed in the San Joaquin River.

Suisun Bay displayed a gray-green general color with numerous areas of orange-brown turbidity. For the most part, this indication was confined to the Bay's western area.

The San Joaquin River and New York Slough exhibited a dark gray-brown color with no sharp variations.

Section B - The background or most general color of the water in this section was brown-green. The areas near Sausalito, Tiburon and San Rafael were yellow-brown and quite turbid.

The Treasure Island - Oakland Harbor area was generally dark gray-green in color. The Harbor area contained a yellow-brown turbid condition. This is seen by the light gray area, in Figure 34, near the east end of the Oakland Bay Bridge.

There were numerous areas of yellow-brown in the vicinity of San Pablo Point.

The Berkeley Harbor vicinity contained a heavy yellow-gray turbidity. It was especially heavy in the area of Emeryville.

The Golden Gate Strait was generally brown-green in color with yellow-brown streaks of turbidity near the San Francisco shore.

Sections C and D - The characteristics color of the middle of San Francisco Bay was gray-green. The shore areas in the upper sections of the Bay were moderately turbid. The water near the Oakland Airport was yellow-brown in color. There was also a moderate discoloration, due to turbidity, in the Bay waters in the vicinity of San Francisco International Airport.

The levels of turbidity was quite high from San Mateo along shore to Palo Alto. In the immediate area of the Dumbarton Bridge the yellow-brown discoloration extended nearly halfway across the Bay from the western shore.

The discoloration in the water near the west end of the San Mateo Bridge was yellow-gray.

At the time of flight, there was a dissolved oxygen depression in the Alameda Inner Harbor area near Government Island.

ii) Characterization of Bay Area Waters - July 1972.

The general color and thermal characteristics for this mission, are likewise presented for Sections A through D of the Bay area.

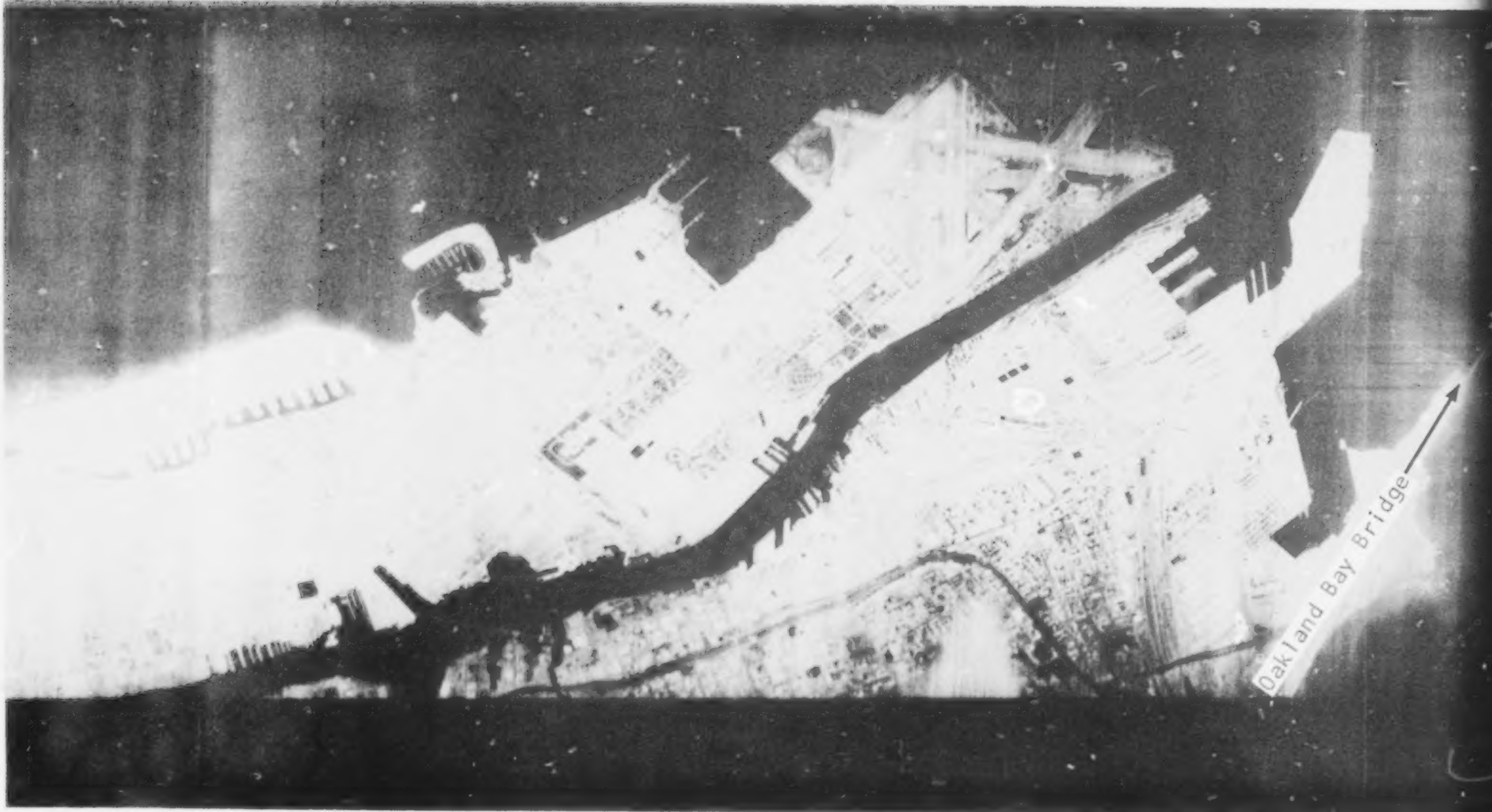
Section A - The San Joaquin River, New York Slough, and Suisun Bay were generally gray-brown in color. There were areas of turbidity, red-brown in color, at numerous points in these waterways.

The Carquinez Strait was gray-green in color. It contained areas of yellow-brown turbidity.

The eastern section of San Pablo Bay was generally gray-green. The western section of the Bay was quite turbid being yellow-brown in color.

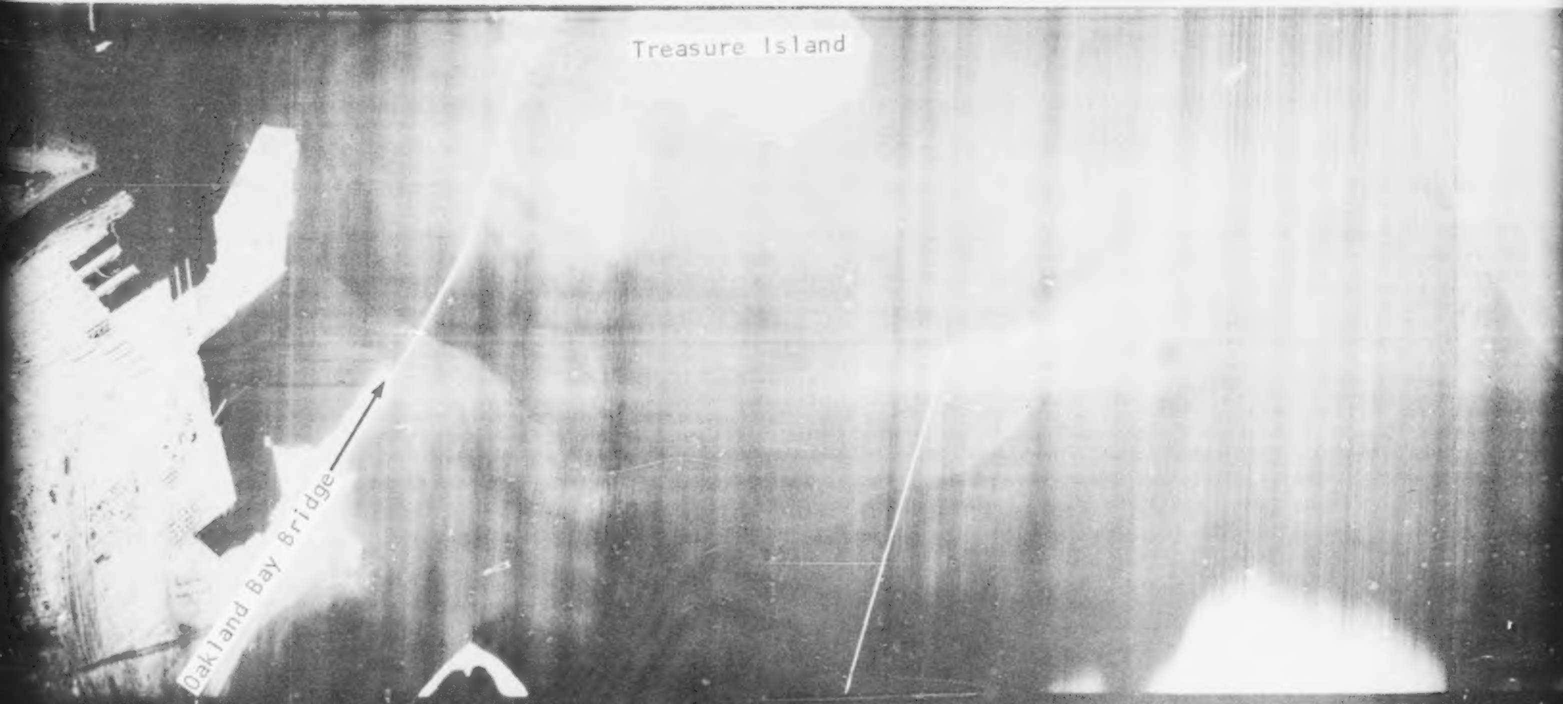
Section B - In the upper San Francisco Bay from Oakland Outer Harbor to San Pablo Point, areas of quite heavy yellow-brown turbidity were recorded. This is seen in Figure 64 which is a thermal map. The light gray areas correlated directly with the locations of turbidity recorded in the optical imagery. The turbid patches were not significantly warmer than the background areas in the Bay waters. The suspended solids in the water scattered the solar rays from the sun. The Infra-red Line Scanner then recorded these areas as being warmer. This is a form of Mie Scattering, i.e., the scattering of light by particles large compared to the wavelength of light (yellow light wavelength is $5.5 \cdot 10^{-5}$cm or 0.55 microns). Note the sharp pattern recorded around the pilings on the San Rafael Bridge.

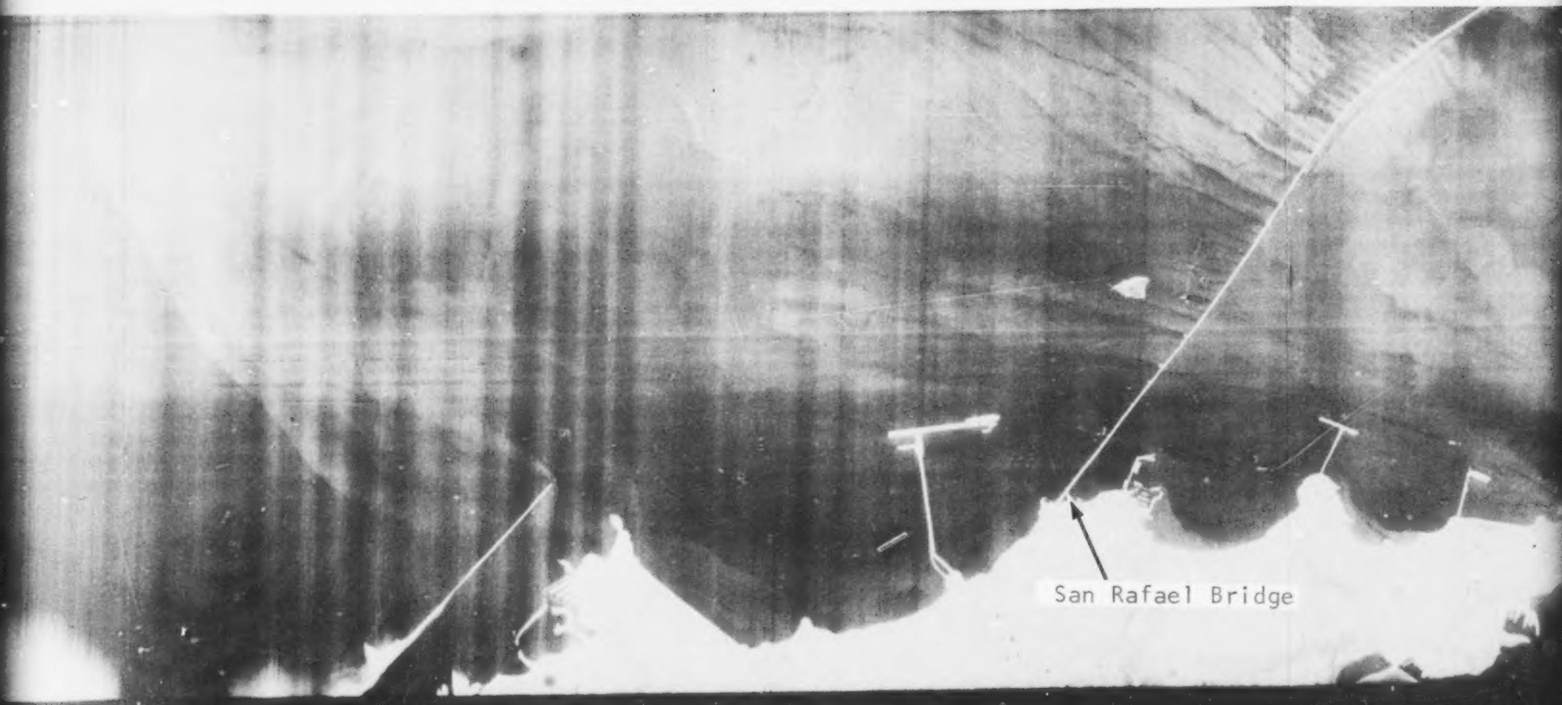
A low altitude thermal map of the Bay area north and east of Treasure Island is shown in Figure 65. Again the light gray patches were areas of turbidity. The long black


Oakland Bay Bridge

Reproduced from best available copy.

83-a


Treasure Island
Oakland Bay Bridge


San Rafael Bridge

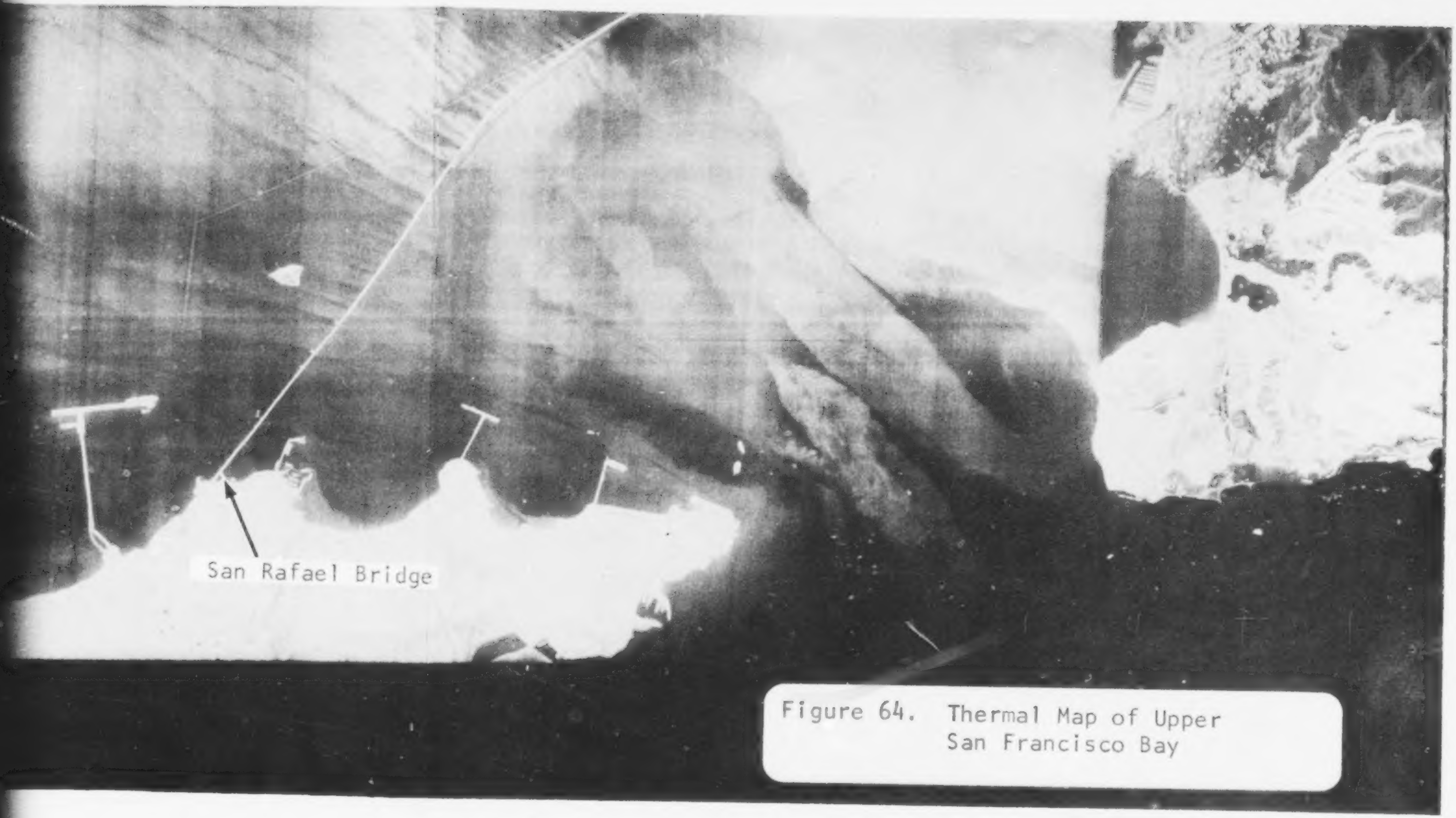

San Rafael Bridge

Figure 64. Thermal Map of Upper San Francisco Bay

lines were due to ship traffic disturbing the turbid fields. This map also indicates the complexity of the current patterns in this area.

Special attention is called to the black paraboloid located to the left or south of the Oakland Bay Bridge and east of Yerba Buena Island, as indicated by the arrow in Figure 66. This was the discharge from the East Bay MUD STP discussed in item B-27. The upwelling effluent was disturbing the local turbid field.

Sections C & D - The characteristic color of the water in San Francisco Bay south of the Oakland Bay Bridge, was moderate green. There were isolated areas of heavy turbidity between the San Mateo and Dumbarton Bridges.

In the waterway between Treasure Island and San Francisco, turbid fields were recorded as shown in the thermal map labeled Figure 66. The turbidity is a darker gray than that in some areas of Figures 64 and 65. A similar effect was present in the areas of the Oakland Bay Bridge pilings, as was recorded for those of the San Rafael Bridge. In Figure 67, note how the turbid field abruptly ends on the left side of the map. This was probably the phase front (leading edge) for the tide through the Golden Gate Strait.

Figure 68 shows a quite complex turbid field located South-Southeast of Hunters Point. The thermal plume near the left edge of the map was from the Hunter's Point Power Plant discharge discussed in C-82.

The Coyote Creek waters were dark green-brown with areas of red-brown discoloration.

X. SATELLITE IMAGERY OF THE SAN FRANCISCO BAY AREA

The Multispectral Subsystem (MSS) aboard the Earth Resources Technology Satellite (ERTS) has four bands which simultaneously record images from Earth. The bandwidth of each MSS band is as follows:

MSS 4	0.5 to 0.6 microns (green light)
MSS 5	0.6 to 0.7 microns (red light)
MSS 6	0.7 to 0.8 microns (near infrared)
MSS 7	0.8 to 1.1 microns (near infrared)

These particular designations can be found near the middle of the bottom legend on Figures 69 through 72. This data was recorded on 22 January 1973 (lower left) at 18:17, 50 seconds Zulu (Greenwich Mean Time) as indicated in the lower right portion of each figure. This corresponds to 10:17, 50 seconds Pacific Standard Time (PST).

At data time, there was a cloud mass stretching from Suisun Bay into the San Joaquin Valley. Figure 1 may be used to identify many of the features in this imagery.

Figure 69, recorded in the green band, is characterized by a lack of image contrast (sharpness) between various land features and between land-water features. The Pacific Coast, San Francisco Bay, and San Pablo Bay were discolored significantly in this band. The Salt Evaporators in South Bay appear to be land.

In the red band labeled Figure 70, most of the discoloration in the Pacific Ocean and in the upper half of South Bay has disappeared.

The discoloration in San Pablo Bay and upper San Francisco Bay was more pronounced. The characteristic true color of these areas would have been yellow-brown or orange-brown. Note the rounded discoloration field located south of the Oakland Bay Bridge and between San Frnacisco and Alameda. This field is being washed into South Bay by a change in tide phase i.e., from ebb tide to flood tide. The tide tables indicate that high-low tide occurred at Yerba Buena Island 0815 hours PST. Low high tide occurred at 1416 hours PST. This imagery was recorded nearly two hours three minutes after initiation of flood tide.

The deepest part or channel of South Bay is clearly seen from just north of the San Mateo Bridge to the Dumbarton Bridge. There was a greater contrast in the red band between the Salt Evaporators and the Bay Water in South Bay. Also, the discoloration in South Bay is contained in the shore areas and at the mouth of Coyote Creek. The San Jose STP and discharge channel are clearly visible in this figure. Note the light gray discoloration at the bottom of the image on the Pacific Coast. It appears to be originating from the Fort Ord vicinity southeast of Santa Cruz. The true color of the discoloration would be red-orange.

In Figure 71, recorded in the near infrared band, nearly all discoloration has disappeared again with the exception of San Pablo Bay and Upper San Francisco Bay. The flow from Sonoma Creek into San Pablo Bay is clearly visible. The boundaries of the Salt

Evaporators are clearly visible in this band. Only the brightest portion of the discoloration near Fort Ord, as seen in Figure 70, is visible in this image. The channel from the San Mateo to the Dumbarton Bridges is visible but with lesser contrast from that in Figure 70. The fact that the discoloration appears in this infrared band does not soundly indicate the presence of chlorophyll in these waters. There, of course, may have been a certain amount of chlorophyll in the water at data time.

In Figure 72, the only discoloration present appears in San Pablo Bay with much lesser contrast than appeared in the other three bands. Also, the discoloration had disappeared from the Carquinez Strait. Again, the discoloration in the Bay is not a positive indicator of chlorophyll.

The numerous sloughs flowing into South Bay are more pronounced in this image. Some of the light gray areas in and along the Salt Evaporators could easily have been chlorophyll plant growth based upon the information contained in the two aircraft missions.

XI. SUMMARY AND CONCLUSIONS

San Francisco Bay, San Pablo Bay, Suisun Bay, and the lower San Joaquin River were covered by aerial reconnaissance in April and July 1972. The April effort consisted only of daylight flights while that of July contained night flights.

A total of 217 active pollution sources/indications were recorded in the above mentioned areas. Approximately 88 per cent of this number were related to industrial facilities while only 12 per cent were related to municipal waste sources. Nearly 46 per cent of the total number of indications were located along the Bay between the San Mateo and the Oakland Bay Bridges which included the northern San Francisco area.

The characteristic color of the area waters changed somewhat from April to July. Suisun was generally gray-brown in color but was more turbid in the western reaches in July. San Pablo Bay was significantly more turbid in July being yellow-brown in color. San Francisco Bay had evolved from a gray-green characteristic color with turbid fields along the western shore in April to a moderate or jade green with quite heavy turbidity from Coyote Creek to the San Mateo Bridge, in July. The weather data given in Section VII of this report, shows that in April 1972, 1.2 inches of rain fell at San Francisco International Airport. No rain fell in July. The increase in discoloration in San Francisco Bay was not directly related to significant land run off in the immediate area. The precise reasons for the increased discoloration in San Pablo Bay from April to July are not known.

Multiband imagery from the ERTS Satellite is included in this report. It was obtained on January 22, 1973. It is easily seen in this data that the discoloration in San Pablo Bay is somewhat unique from that in other areas. The reasons for this apparent uniqueness is not known.

It is suggested that the total Bay area be kept under surveillance by use of the ERTS Satellite data to monitor the evaluation of the discoloration effects.

GLOSSARY - CONVERSION TABLE

km	Kilometer
cm	Centimeter
mm	Millimeter
mgd	million gallons per day
cmd.	Cubic meters per day
kcmd	thousands of cubic meters per day
mcmd	millions of cubic meters per day
1 mgd.	3785 cmd
1 mgd.	3.785 kcmd
1 mgd.	0.003785 mcmd
1 km	0.62137 statute miles
1 meter.	3.281 feet
1 foot	0.3048 meters
1 micron	10^{-6} meters = 10^{4} angstroms
1 square km	0.3861 square statute meters

92

APPENDIX A^3

FILM SPECTRAL SENSITIVITY DATA

OPTICAL FILTER TRANSMITTANCE DATA

The spectral curves for each film and optical filter used during this reconnaissance program are provided on the following pages:

i) SO-397 with HF3/HF5 filter combination

ii) 2403 with 47A

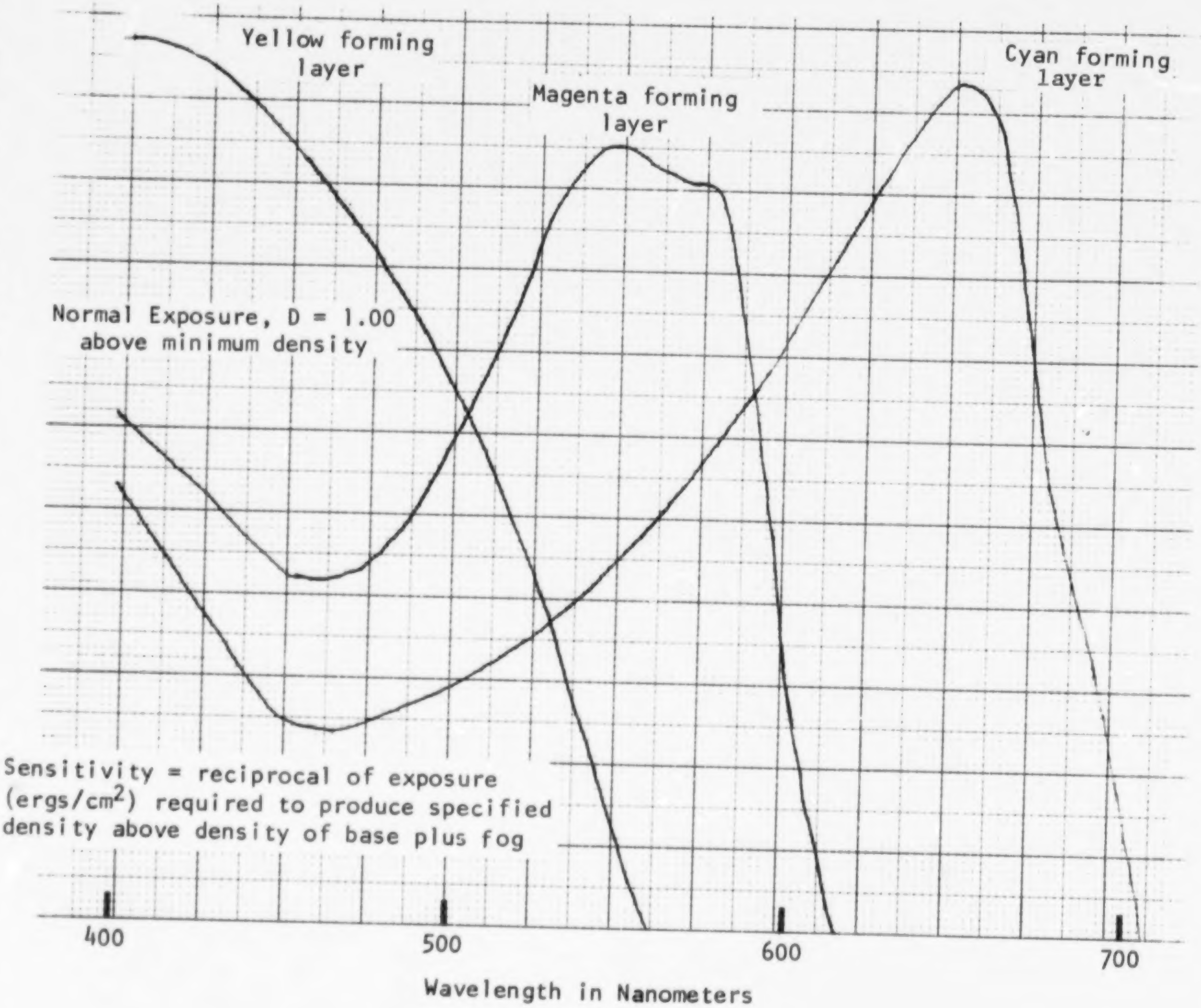
iii) 2443 with 16.

In order to obtain the optical band width B (λ) of each film-filter combination let $F(\lambda)$ be the transmittance function of the respective filter and $S(\lambda)$ be the spectral sensitivity function for the particular film. Then

$$B(\lambda) = \int_{\lambda 1}^{\lambda 2} S(\lambda)\ F(\lambda)\ d\lambda.$$

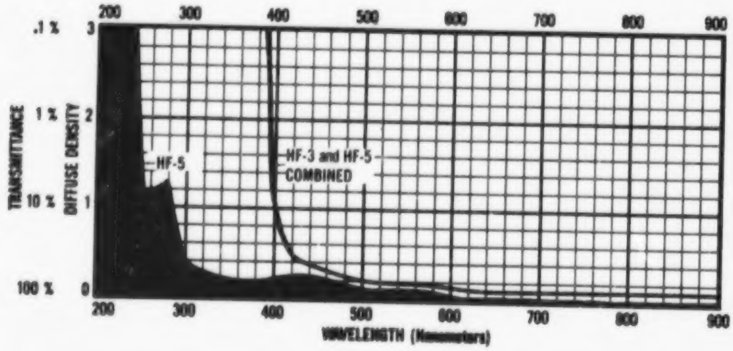
94

Kodak Ektachrome EF Aerographic Film
SO-397 Development Process EA-5



Normal Exposure, D = 1.00 above minimum density

Sensitivity = reciprocal of exposure (ergs/cm^2) required to produce specified density above density of base plus fog

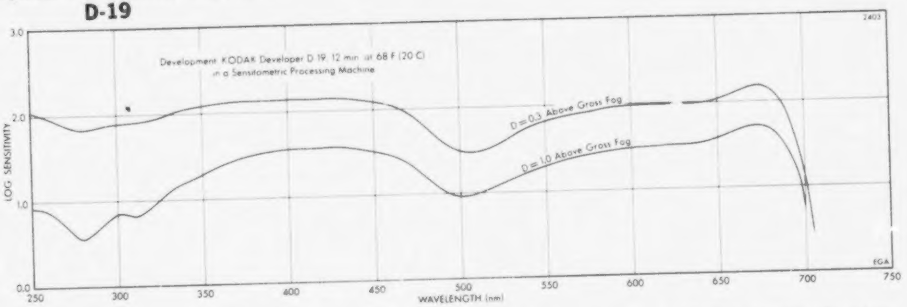


HF-3 and HF-5

AAB*

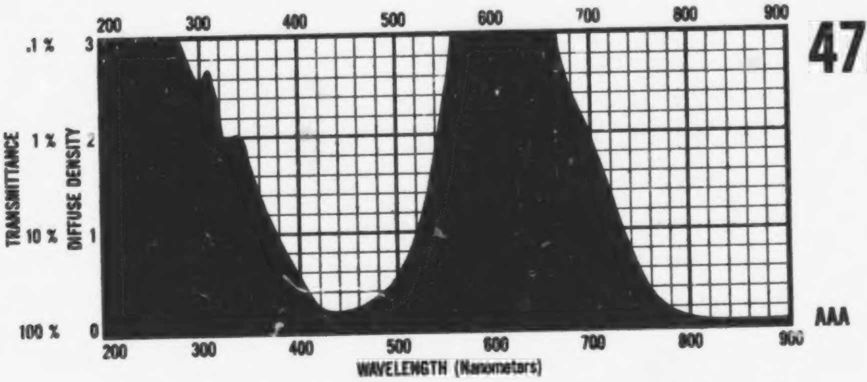
KODAK TRI-X AEROGRAPHIC Film 2403
(ESTAR Base)

Spectral Sensitivity Curves:
D-19



Sensitivity = Reciprocal of the exposure in ergs/cm² required to produce the indicated density (D) above gross fog.

47A



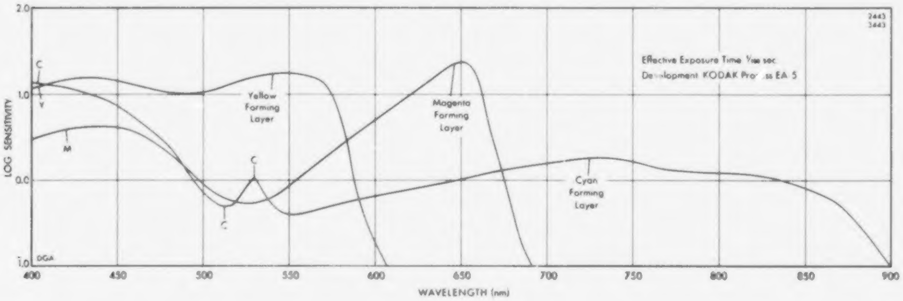
Light Blue. Used for exciting fluorescein in medical applications of fluorescence photography.

KODAK AEROCHROME Infrared Film 2443
(ESTAR Base)

KODAK AEROCHROME Infrared Film 3443
(ESTAR Thin Base)

Critical users of these two films should determine the actual sensitometric characteristics of their particular batch of film by using their own specialized techniques. The keeping conditions for these films have an effect on their sensitometric response.

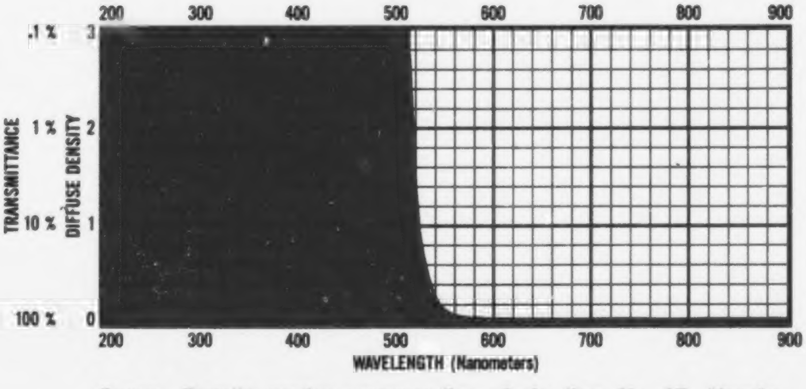
Spectral Sensitivity Curves:



Sensitivity = Reciprocal of the exposure (ergs/cm²) required to produce a density of 1.0 above D min. Measurements were confined to the 400 to 900 nanometer region.

Spectral Dye Density Curves:

16



AAB

Orange. Permits greater overcorrection of sky than No. 15. Absorbs small amount of green.

APPENDIX B

DEVELOPMENT PROCESSES FOR BLACK-WHITE, COLOR RECONNAISSANCE FILMS

The film was processed in processors manufactured by Eastman Kodak Company. The infrared and true-color Ektachrome films were processed in the Ektachrome RT Processor, Model 1811, Type M, Federal Stock Number 6740-109-2987PK, Part Number 460250. This machine uses Kodak EA-5 chemicals. The temperature of the respective chemicals in the processor and the film process rate, in feet per minute, are the important parameters. Their values were specified as follows:

1)	Prehardner	115°F
2)	Neutralizer	115°F
3)	First Developer	115°F
4)	First Stop Bath	115°F
5)	Color Developer	120°F
6)	Second Stop Bath	120°F
7)	Bleach	125°F
8)	Fixer	120°F
9)	Stablizer	120°F

The film process rate was 9 feet per minute. The nine chemical baths, mentioned above, comprise the EA-5 process used for the color films. The temperature and pressure of the fresh water supplied to the processor was 120°F and 45 pounds per square inch minimum respectively. The fresh water is used to wash the film immediately before entering the dryers.

The black and white film 2403 was processed in a Kodak Versamat Model 11-CM processor using Kodak 641 chemicals. This process contains only two chemical baths which are the developer and fixer. During processing, these were maintained at 85°F with a film process rate of 12 feet per minute. Fresh water temperature was maintained at 85°F with a pressure greater than 45 pounds per square inch.

APPENDIX C

Focal Length, Angle of View, and the Effects of Focal Length and Altitude

The focal length of the aerial sensors affects the size (or scale) of the resulting imagery. At any given altitude, the image size changes in direct proportion to changes in focal length. Also for a given focal length, the image size is inversely proportional to the altitude.

The angle of view of a sensor is a function of the focal length and the image format size. The importance of the angle of view is its relationship to the amount of target area recorded in the imagery. Refer to the following diagrams: A. Focal length of a simple lens. B. Effect of focal length on scale and ground coverage. C. Effect of altitude on scale and ground coverage.

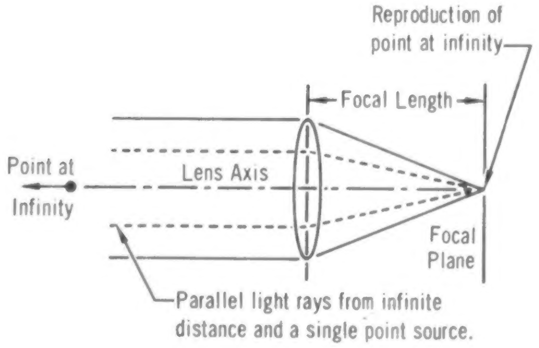

Reproduction of
point at infinity
Focal Length
Point at
Infinity
Lens Axis
Focal
Plane
Parallel light rays from infinite
distance and a single point source.

Diagram A. Focal Length of a Simple Lens

Focal length is the distance from the lens (A) to the film (B).

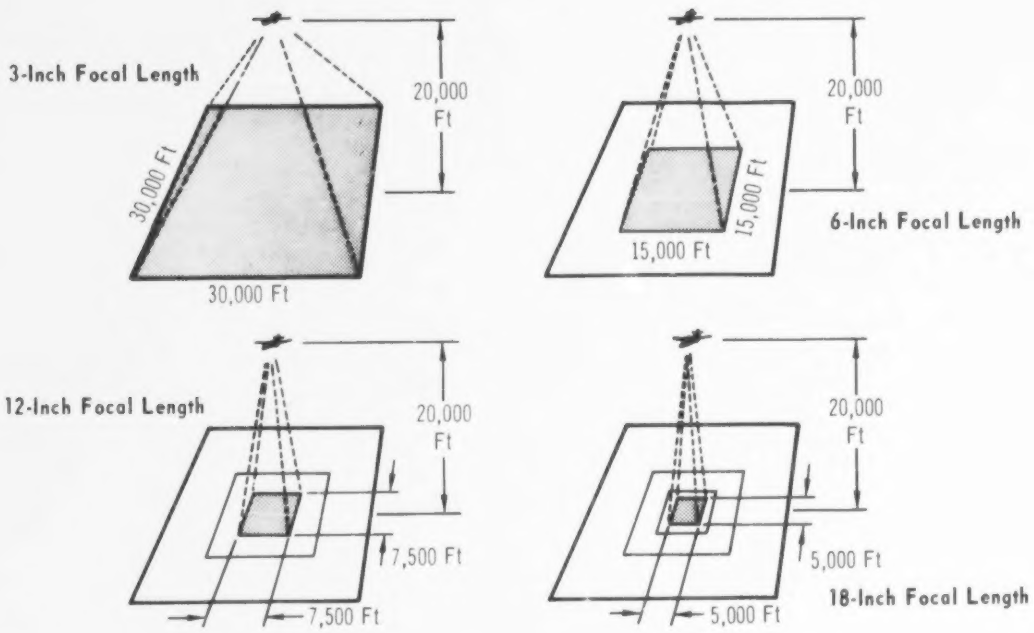

3-Inch Focal Length
20,000 Ft
30,000 Ft
30,000 Ft
20,000 Ft
15,000 Ft
15,000 Ft
6-Inch Focal Length
12-Inch Focal Length
20,000 Ft
7,500 Ft
7,500 Ft
20,000 Ft
5,000 Ft
5,000 Ft
18-Inch Focal Length

DIAGRAM B Effect of Focal Length on Scale and Ground Coverage

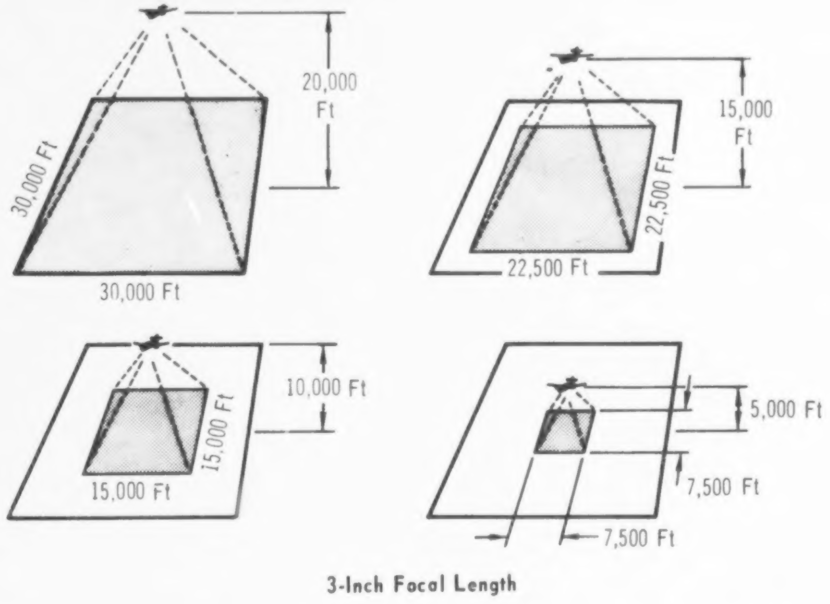
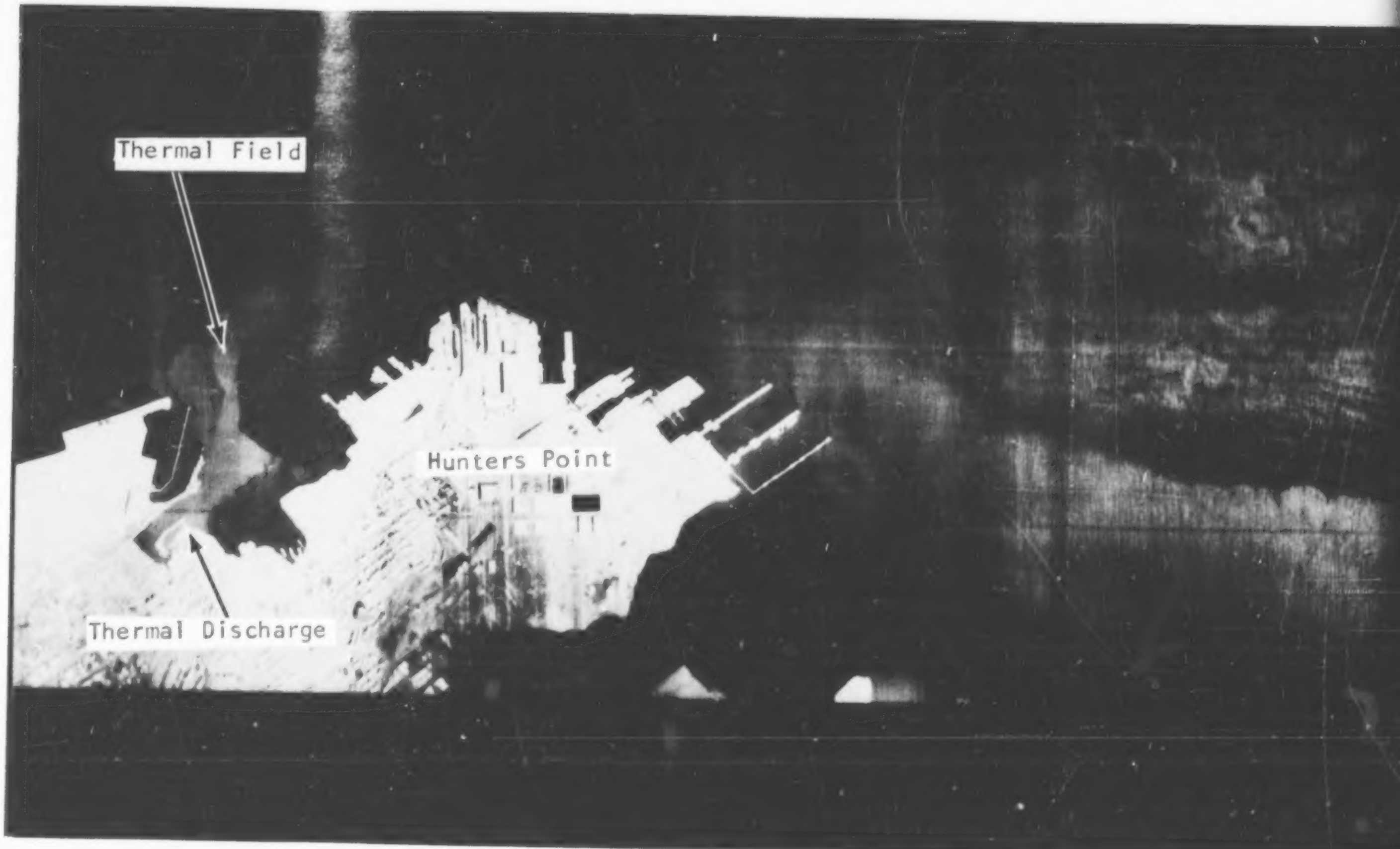

20,000 Ft
30,000 Ft
30,000 Ft
15,000 Ft
22,500 Ft
22,500 Ft
10,000 Ft
15,000 Ft
15,000 Ft
5,000 Ft
7,500 Ft
7,500 Ft
3-Inch Focal Length

DIAGRAM C Effect of Altitude on Scale and Ground Coverage

REFERENCES

1. Local Climatological Data obtained from the National Weather Service, San Francisco, California.
2. 1972 Tide Tables, West Coast of North and South America, U. S. Department of Commerce, NOAA.
3. Kodak Publications M-29 and B-3


Thermal Field
Hunters Point
Thermal Discharge

85-a

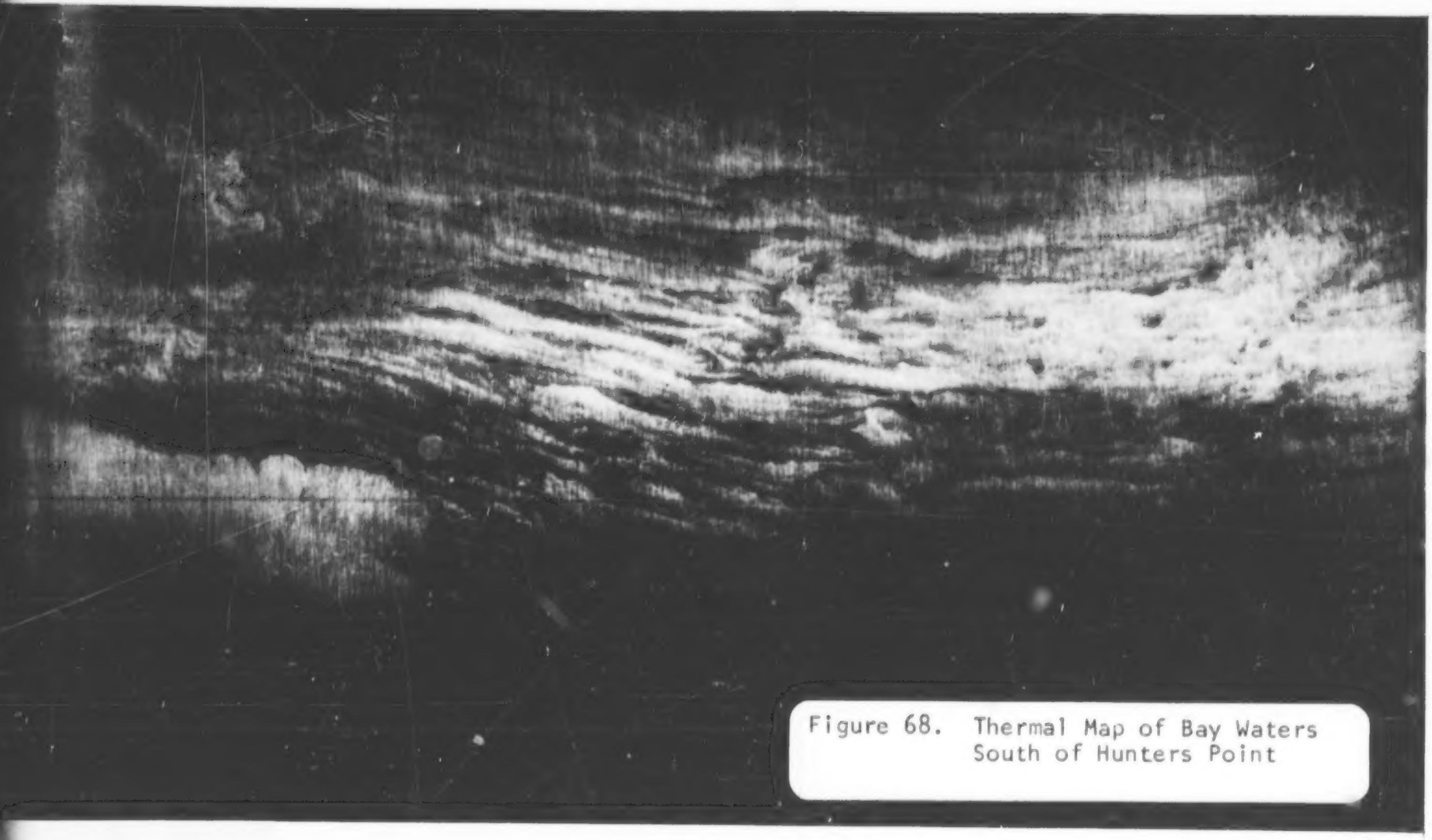


Figure 68. Thermal Map of Bay Waters South of Hunters Point